

THE WORLD'S #1 A/V MAGAZINE

Stereo Review

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TEST REPORTS

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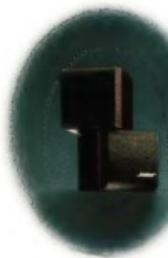
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Stereo Review

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July 1997



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Cover. The back panel of the Carver AV-505, one of the four surround-sound amplifiers in our comparison tests starting on page 52, with Monster Cable Z2 Reference speaker cables and Interlink Reference 2 interconnect.

Photograph by Chris Gould

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BULLETIN

BY BOB ANKOSKO & WILLIAM LIVINGSTONE

DVD OFF AND RUNNING

Sales of DVD players reportedly topped the 50,000 mark in the first sixteen weeks they were on store shelves, confirming that the new format is off to a solid start — especially considering that only a handful of players were available in a limited number of markets. ... A number of video stores were expected to begin renting Philips Magnavox DVD players in June as part of a "try before you buy" program. A two-night rental would cost about \$19.95 and include a player with easy hookup instructions and one or two DVD movies. ... Megaretailer Blockbuster, a DVD fence-sitter until very recently, is now selling DVD movies in 100 stores nationwide. ... Creative Labs, maker of SoundBlaster sound cards and other multimedia PC products, is offering the \$500 PC-DVD kit, which includes a DVD-ROM drive that also plays CD's and CD-ROM's and a Dolby Digital/MPEG-2 A/V decode board; copy-protection hardware is also included to allow playback of DVD movies. ... High-end models in IBM's Aptiva line will be among the first computers to include a built-in DVD-ROM drive. They will also include a Bose Acoustimass speaker system.

A/V DIGEST

If you own a digital-to-analog converter (DAC) from the now-defunct company Audio Alchemy, you can get up to a \$225 trade-in allowance on certain Parasound DAC's by taking the old component to an authorized Parasound dealer before August 3. Trade-ins must be physically intact but need not be in working order. For more information, call 415-397-7100. ... To clear up confusion over how much digital TV (a.k.a. HDTV) sets will cost when they arrive in the fall of 1998, Zenith and Mitsubishi have

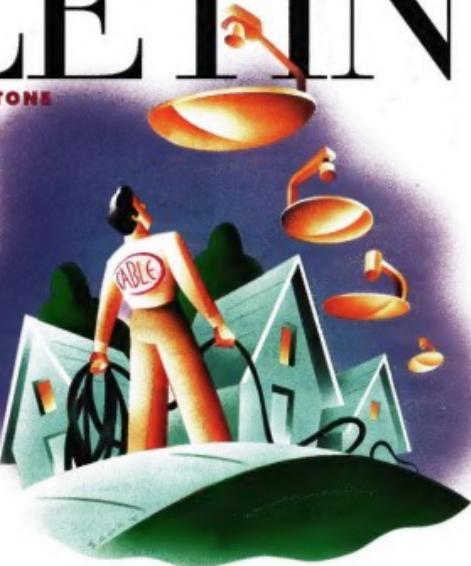
announced that their first DTV models will be wide-screen rear-projection sets in the \$5,000 to \$7,000 and \$8,000 to \$11,000 ranges, respectively. ... Pioneer's first THX A/V receivers, the Elite series VSX-07TX (\$1,450) and VSX-09TX (\$1,750), should be available by the time you read this. Both include Dolby Digital processing and can deliver 100 watts each to five channels. The VSX-09TX has a full-copper chassis, all gold-plated jacks, and rosewood side panels. ... A new six-speaker, 200-watt Bose sound system is standard equipment on the 1997 Corvette. The system features a thin-profile 8-inch woofer mounted low in each door.

ACCOLADES

Ray Dolby, founder and chairman of Dolby Labs of San Francisco, will receive the National Medal of Technology from President Clinton this summer. Previous honors for Dolby include an Oscar and an Emmy. ... Wynton Marsalis won this year's Pulitzer Prize for music for *Blood on the Fields*, a jazz oratorio. ... June inductees into the Songwriters Hall of Fame include Joni Mitchell, Phil Spector, Harlan Howard, and — posthumously — Jimmy Kennedy and the Cuban pianist/composer Ernesto Lecuona.

NEW AND READABLE

Schirmer is publishing this month *The Home Theater Companion* by Howard Ferster (\$40), a guide to buying, installing, and using A/V equipment. ... Wagner's Ring, A Listener's Companion & Concordance by J. K. Holman has been published by Amadeus Press (\$34.95). ... David Bailey's *Rock and Roll Heroes* (Bulfinch, \$37.50) is a collection of famous faces of the 1960's through the 1980's — Patti Smith, Sting, Boy George, Elvis Costello, to



SATELLITE SYSTEMS INVADE CABLE-TV TURF

If you've ever cursed your cable-TV company, you won't be surprised to learn that folks who purchase DSS and other satellite-TV systems are dumping their cable subscriptions at the rate of more than a million a year, according to a national survey of DSS owners conducted by the Consumer Electronics Manufacturers Association (CEMA). Nearly two-thirds of the 1,000 DSS owners surveyed cited the poor quality of cable-TV services as the top reason for switching to satellite TV.

Among the specific reasons given for buying a DSS system were access to more channels and a greater variety of programming (92 percent), improved picture quality (87 percent), and enhanced audio (69 percent). Once the satellite systems were installed, 64 percent of cable-TV subscribers canceled their cable service, and 18 percent downgraded to basic service. CEMA estimates that 4.4 million satellite-TV systems will be sold this year, up from 3.5 million in 1996 and 2.2 million in 1995.

name a few — as captured by the noted photographer.

CONVERGENCE CORNER

RCA's long-awaited PC Theatre — formerly known as Genius Theatre — should be available in select Circuit City and CompUSA stores by the time you read this. The result of a collaborative effort with Compaq, the \$4,999

TV/PC system features a 36-inch monitor and a 200-MHz Pentium MMX brain with a 3.8-gigabyte hard drive, a 16X CD-ROM drive, A/V inputs and outputs, a USB peripherals port, and a wireless keyboard. A supplied universal remote can be used to toggle between TV and PC modes without having to reboot the computer.



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LETTERS

AC-3 Onboard or Out?

I recently purchased the Panasonic DVD-A300 DVD player (one of those tested for May's "First Look at DVD"), which comes with an onboard AC-3 decoder. I hooked it up directly to my Harman Kardon AVR80 A/V receiver and experienced Dolby Digital surround for the first time. I was blown away by the sound. But does performance quality vary among AC-3 decoding devices? Am I likely to experience a performance boost if I replace the Panasonic all-in-one player with Harman Kardon's ADP-303 onboard AC-3 decoder and another high-quality DVD player? Are there any onboard decoders that incorporate THX digital processing and will work with my A/V receiver?

ADAM W. COHEN
Forest Hills, NY

Technical Editor David Ranada replies: At this point in the Dolby Digital system's development, the available decoder chips are practically identical in measurable and sonic properties (Dolby's approval system guarantees this). Important sonic differences can arise in the circuitry following the AC-3 decoding, however. Not having tested the Harman Kardon ADP-303, we can't say whether it'll provide an improvement over the Panasonic player. We agree with Dolby Labs that Dolby Digital decoding should be performed not in a DVD player but in the system amplifier/receiver, where a better array of auxiliary circuits (such as bass management) can be implemented. We don't know of any onboard AC-3 decoders that also incorporate THX. The closest you can get is probably a Dolby Digital/THX preamplifier.

Classics

Corey Greenberg's excellent user's report on the Marantz Classics recreations in May rekindled many fond listening memories. In the late Seventies my friend Ron Hamilton built his own triode tube amplifier and modified a Harman Kardon Citation IV preamp. A Philips turntable, Joe Grado cartridge, and a pair of magnificent Quad ESL speakers completed his setup. We were in sonic heaven and spent many hours discovering the spiritual nuances of reggae, acoustic jazz, and female vocals that this system revealed.

ROGER VANCE
Crescent City, CA

Selective Outrage

I am not a doctor, nor related to one, but I am "outraged" by the letter from Timothy Hendel (May), which said he was "outraged" because the elaborate and expensive music system built into a houseboat described in January "Systems" ("Floating Heaven") was "ordered and paid for by a physician." He cited this as an example of why we need health-care reform.

Would Mr. Hendel call for "sports reform" if the system had been paid for by a pro athlete who earns millions of dollars annually? Would he call for "legal reform" if it was owned by a \$500-an-hour lawyer? How about "entertainment reform" if it was a Hollywood star? Mr. Hendel's rather selective outrage is an example of bitter envy toward someone who has succeeded in this free country.

CHARLES METCALF
West Des Moines, IA

DVD Differences

I was all ready to go out and purchase a Sony DVP-S7000 DVD Player until I read David Ranada's "First Look at DVD" (May). The "Features Checklist" for the three players tested states that the Sony DVP-S7000 cannot play DVD's with 96-kHz/24-bit audio. Why not? And what's the difference between those DVD's and regular ones?

VINCENT LO PRESTI
Huntington, NY

David Ranada replies: Sony has since told me that the DVP-S7000 can play discs with 96-kHz/24-bit audio, but it is not mentioned on the player's spec sheet, and I didn't have any 96-kHz/24-bit DVD's to check it. I predict, however, that any "improvements" you hear with such discs will be quite overwhelming. The hearing of almost all adult humans cuts off before 20 kHz, let alone the 22.05-kHz upper limit of normal CD's. The 48-kHz limit promised by the 96-kHz/24-bit discs is a technological boondoggle.

Cinepro Amp

We at Cinepro would like to thank STEREO REVIEW and Daniel Kumin for the excellent review of our new Model 3k6 six-channel power amplifier in June. I would, however, like to clarify one point regarding his power measurements. We test our amplifiers at a constant 120 volts AC line voltage, and our specs are based on those tests. Under those conditions, the Cinepro 3k6 produces almost 365 watts per channel into 8 ohms, all channels driven, somewhat more than Mr. Kumin found. As he correctly surmised, the AC voltage from his wall socket was sagging considerably during his full-power tests. Even a small voltage drop dramatically reduces the amount of continuous output power that any amp can deliver.

It should be noted, however, that even with standard 15- to 20-ampere household AC mains, the Model 3k6 can develop its full dynamic power of about 750 watts per channel into 8 ohms, or over 1,000 watts per channel into 4 ohms, which agrees with Mr. Kumin's dynamic-headroom figure of 3.2 dB.

We understand the difficulty in testing this six-channel amplifier. It is the most powerful ever offered for home use and ne-

cessitates some very heavy-duty equipment to test it correctly.

ERIC ABRAHAM
President, Cinepro Professional
San Francisco, CA

Daniel Kumin replies: I am only too aware of the importance of line voltage to net amplifier power, as I thought I had made clear. Unfortunately, in the real world where I, like most STEREO REVIEW readers, live and work, line voltage always sags under load—it's just a question of degree. Fortunately, as I pointed out, music is far more dynamic than sine waves, so the degree of sag in our tests is highly unlikely to occur in normal use. While I believe our tests reflect actual conditions in the typical home theater, I agree wholeheartedly that measures taken to stiffen up the AC supply—and I am investigating such measures for my lab, in part inspired by the Cinepro 3k6—will pay impressive dividends.

Stylus Source

It was fine to see Daniel Kumin's article in June about the return of vinyl records ("Get Back!"), but not his statement that replacement phonograph stylus are hard to find. He need only have turned to "Records" in the classified advertising pages of STEREO REVIEW, where we have advertised nearly every month since June 1992.

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WILLIAM UTLEY
Vice President, Needle Express
Rockville, MD

Give Peace a Chance

After years of not subscribing to audio magazines, I am now subscribing again to STEREO REVIEW (I didn't stop listening to music, however). I'm happy to find your magazine as informative as I did ten years ago. I am dismayed, though, to find that a nasty dispute that raged then still does. I'm speaking of the battle between the "if it can't be measured it doesn't exist" and the "any wacky thing makes a significant difference if you believe in it enough" camps. I'd hoped we'd be beyond this by now. Why don't we all exercise a little tolerance and enjoy what we're all ostensibly in this for, listening to music?

PAUL BOUDREAU
Washington, DC

We welcome your letters. Please address correspondence to Editor, Stereo Review, 1633 Broadway, New York, NY 10019. You should include your address and telephone number for verification. Letters may be edited for clarity and length.

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The A1 is a member of Celestion's A Series of loudspeakers. The two-way speaker features a 1-inch ferrofluid-cooled, titanium-dome tweeter that includes a Faraday ring, which is said to increase output and minimize distortion at loud volumes. The 7-inch woofer has a die-cast aluminum chassis

that serves as a heat sink to increase the speaker's power-handling capability. Price: \$1,299 a pair in black ash or cherry finish, \$1,499 a pair in rosewood.

Celestion, distributed by KH America, Inc., Dept. SR, 89 Doug Brown Way, Holliston, MA 01746.
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▼ INTERACTIVE LABS

The Fatboy, from Interactive Labs, provides five channels of amplification for home-theater applications. Each channel includes an independent input-level adjustment for surround-sound balancing and is rated to deliver 100 watts into 8 ohms, or 200 watts into 4 ohms, with less than 0.01 percent distortion.

Current-sensing, auto-resetting solid-state circuit breakers can shut down any channel to avoid heat damage. A current-sensing Smart Power Control allows another component to turn the amp on. Price: \$1,995. Interactive Labs, Inc., Dept. SR, 45 Hemlock St., Selden, NY 11784.
• Circle 122 on reader service card



MITSUBISHI ▼

The DD-1000, Mitsubishi's first-generation DVD player, features a full-size metal chassis styled to complement the company's A/V receivers and VCR's. The player supports base-level DVD functions, including the ability to select either a 4:3 or a 16:9 aspect ratio, to view subtitles,

and to access additional camera angles. It also supports multiple-language soundtracks and has composite-video, S-video, stereo analog audio, and 5.1-channel digital audio outputs. Price: \$699. Mitsubishi, Dept. SR, 6100 Atlanta Ave., Norcross, GA 30071.
• Circle 121 on reader service card



▼ BOSE

The Bose Model 131 marine speaker is designed to withstand the rigors of the weather. It features a cone made from a combination of pulp, plastic, and waterproofing agents and a silicone-coated surround. The tuned, ported enclosure is made from high-impact polypropylene,

and the hardware is stainless steel. The speakers can fit in a 5½-inch cutout if the rear of the mounting surface is accessible; otherwise a 7½-inch cutout is required. Price: \$259 a pair. Bose, Dept. SR, The Mountain, Framingham, MA 01701.
• Circle 123 on reader service card



NEW PRODUCTS



▲ ACOUSTIC RESEARCH ▲

The CS 25 HO center/surround speaker, part of Acoustic Research's High Output Series, features two 5½-inch woofers and a 1-inch AeroFoam dome tweeter. The 19-inch-wide, 8½-inch-high speaker is magnetically shielded so that it can be placed near a picture tube without

causing distortion. To enhance installation flexibility, the CS 25 HO features a built-in swivel stand that can also be used as a mounting bracket. Price: \$279. Acoustic Research, Dept. SR, 527 Stone Rd., Benicia, CA 94510.
• Circle 124 on reader service card

► PROGRESSIVE STRUCTURES ►

The Zero Gravity Z-2770 media rack from Progressive Structures, available with 9- or 13-inch shelf spacing, can accommodate components up to 19½ inches wide. A cable-management system routes interconnect cables through the rack supports, out of sight. Dimensions are 27 x 70 x 19 inches. Finishes include satin black, granite stone, white sand, and raw aluminum. Price: \$899. Progressive Structures, Dept. SR, 2890 Skyline Dr., St. Paul, MN 55121.
• Circle 125 on reader service card



▲ NAKAMICHI ▲

The Nakamichi IA-1z integrated Dolby Digital amplifier can deliver 80 watts into 8 ohms to each of its five channels. Calibration and setup can be done using either on-screen displays or front-panel indicators. There are nine analog audio inputs and four digital inputs, two coaxial, one optical,

and one switchable. Both a full-function programmable system remote control and a simplified input-selection and volume-adjusting remote are supplied. Price: \$2,900. Nakamichi, Dept. SR, 955 Francisco St., Torrance, CA 90502.
• Circle 127 on reader service card

▼ YAMAHA ▼

The RX-V992 A/V receiver from Yamaha has built-in Dolby Digital processing plus Yamaha's Tri-Field Cinema DSP processing, which develops independent enhanced sound fields for the front signals and the left and right surround channels. The amplifier is rated to deliver 80 watts to

each of the five channels, and it includes preamplifier outputs for each channel. There are four audio inputs and five A/V inputs, including a pair on the front panel. Price: \$999. Yamaha, Dept. SR, 6560 Orangehorpe Ave., Buena Park, CA 90620.
• Circle 126 on reader service card



◀ CD TECHNOLOGIES ▶

The CL-609 TiltAxial car speaker from CD Technologies combines a 6-inch woofer with a ¾-inch soft-dome swiveling tweeter that is integrated into the speaker's grille. Rated bandwidth is 55 Hz to 20 kHz and power-handling 80 watts continuous, 160 watts peak. The ModuCross MX crossover

features solid-state tweeter protection and high-current circuit traces. A quick-connect system is included for ease of installation and service. Price: \$399 a pair. CD Technologies, Dept. SR, 3070 Skyway Dr., Suite 101, Santa Maria, CA 93455.
• Circle 128 on reader service card

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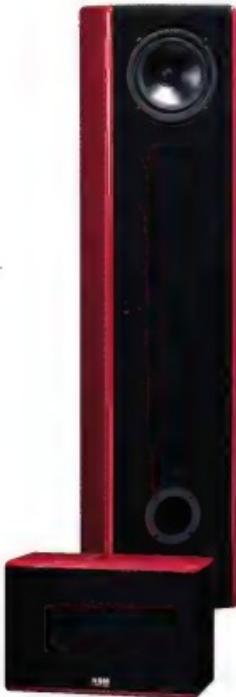
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IRCLE NO. 31 ON READER SERVICE CARD



NEW PRODUCTS



▲ NSM

NSM's Model 30M tower and Segue bookshelf monitor are two-way speakers using the same magnetically shielded 6½-inch coaxial driver, which is said to provide equal vertical and horizontal dispersion. The 30M's ported cabinet is 41 inches high, the Segue's acoustic-suspension enclosure 14 inches wide. The 30M's lower-end limit is given as 28 Hz, the Segue's 48 Hz; rated sensitivity is 88 and 90 dB, respectively. Finish for both speakers is red and black or all black. Prices: 30M, \$2,695 a pair; Segue, \$1,395 a pair. **NSM Loudspeakers, Dept. SR, P.O. Box 326, Garden City, NY 11530.**

• Circle 129 on reader service card

▼ CASE LOGIC

Case Logic's CDX-24 CD organizer wallet is available in four fashion colors — teal, plum, indigo, and charcoal — with contrasting trim. It holds two dozen CD's along with liner notes in see-through dual sleeves. It also includes a separate zippered pocket to carry such items as keys or cash and a carrying strap for easy portability. Price: \$19.95. **Case Logic, Dept. SR, 6303 Dry Creek Parkway, Longmont, CO 80503.**

• Circle 130 on reader service card



▼ DAY SEQUERRA

Day Sequerra's Metropolitan antenna is designed to receive TV and FM broadcasts. The 3½ x 33-inch omnidirectional antenna incorporates a low-noise, cascaded, bipolar RF amplifier. It is intended for wall mounting and is available in white or gray. It can also be painted or wallpapered to match a room's decor. Price: \$129. **Day Sequerra, Dept. SR, 520 Fellowship Rd., E502, Mount Laurel, NJ, 08054.**

• Circle 132 on reader service card



MESA ▲

The Tigris dual-mono integrated tube amplifier from Mesa Engineering features Class A operation and three user-selectable pentode/triode configurations. Each channel uses one 5AR4, four EL84, two 6V6, and two 12AX7 tubes. The Tigris has four line-level inputs,

one fixed output, and one variable buffered output for biamping applications. The front-panel headphone output is driven by the power-amp output. Price: \$2,195. **Mesa Engineering, Dept. SR, 1317 Ross St., Petaluma, CA 94954.**

• Circle 131 on reader service card



▲ CAIG

CAIG's ProGold is said to outperform other contact cleaners and enhancers by not only deoxidizing and cleaning surface contamination, but also penetrating plated surfaces and molecularly bonding to the base metals. It is said to fill the gaps in the contact surfaces to increase

their effective area and, thus, to increase conductivity. ProGold G5 (a 5-percent solution) is now available in a pocket-size Mini-Spray dispenser. Price: \$8.95. **CAIG Laboratories, Dept. SR, 16744 W. Bernardo Dr., San Diego, CA 92127.**

• Circle 133 on reader service card

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CIRCLE NO. 3 ON READER SERVICE CARD

NEW PRODUCTS

SOUNDSTREAM ▼

The Soundstream BLT4 four-channel balanced line driver/transmitter can step up voltage to 5 volts rms to improve a car audio system's signal-to-noise ratio. It features gold-plated input phone jacks and a six-pin mini-DIN output. Supplied with two 15-

foot interconnect cables, the BLT4 is compatible with a dozen Soundstream Reference amplifier models, which its powder coating matches. Price: \$149. Soundstream, Dept. SR, 120 Blue Ravine Rd., Folsom, CA 95630.

• Circle 134 on reader service card



▼ ESOTERIC SOUND

Esoteric Sound's Surface Noise Reducer is said to diminish or eliminate the clicks and pops found on most phonograph records, including 78's and other vintage discs. A distortion-limiting circuit is said to prevent it

from acting on music signals. The device is also useful for removing ignition noise from FM radio reception. Price: \$450. Esoteric Sound, Dept. SR, 4813 Wallbank Ave., Downers Grove, IL 60515.

• Circle 136 on reader service card



▼ MYRYAD

The MC 100 CD player from England's Myryad features an isolated master crystal clock to minimize jitter. Its front panel and drawer front are machined from solid aluminum (a black faceplate is optional). The eleven internal low-noise power supplies are

separately regulated, and rear-panel My-Link connections allow remote-control links with other Myryad components. Price: \$1,200. Myryad, distributed by Audio Influx, Dept. SR, P.O. Box 381, Highland Lakes, NJ 07422.

• Circle 137 on reader service card



PARASOUND ▲

Parasound's Nomad Ten speaker is designed for the outdoors. Its 6½-inch woofer has a rigid carbon-fiber-reinforced polypropylene cone, and the 1-inch soft-dome tweeter is ferrofluid-damped. The grille and mounting bracket are stainless steel, and the multiway binding posts are

gold-plated. The 12 x 9 x 8-inch fiberglass-reinforced molded white ABS plastic enclosure is designed to reduce panel resonance and internal standing waves. Price: \$499 a pair.

Parasound, Dept. SR, 950 Battery St., San Francisco, CA 94111.

• Circle 135 on reader service card



▲ NOISE CANCELLATION TECHNOLOGIES

The NoiseBuster Extreme stereo headset system from Noise Cancellation Technologies accepts inputs from portable tape and CD players as well as in-flight entertainment systems. Earpiece microphones feed ambient noise to the NoiseBuster, which generates a corresponding out-of-

phase signal to cancel it. The active range is said to be 20 Hz to 1.5 kHz, with better than 15 dB of noise cancellation between 150 and 300 Hz. Price: \$69. Noise Cancellation Technologies, Dept. SR, 1 Dock St., Suite 300, Stamford, CT 06902.

• Circle 138 on reader service card



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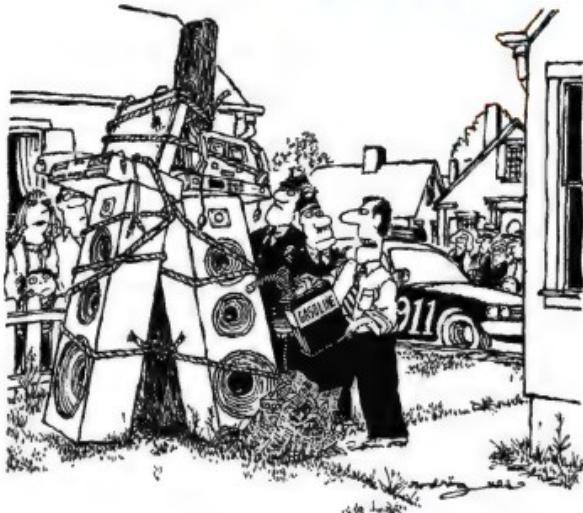
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the thirteenth annual RODRIGUES cartoon caption CONTEST



"Yes, I know the power amp isn't supposed to be on top of the CD player!"

The lucky winner of the thirteenth annual Rodrigues Cartoon Caption Contest is Carl Burns, Ph.D., of Rolla, Missouri, whose winning entry is printed under the drawing.

As we did in previous years, in our issue of January 1997 we published a drawing by our regular cartoonist, Charles Rodrigues,

and invited readers to submit captions for it. The prize for the one judges considered to be the funniest is \$100 and the original drawing. The editors of STEREO REVIEW thank Dr. Burns and the thousands of other readers who submitted captions this year.

We also thank the previous winners, who served as judges: Thomas Briggle (Wads-

worth, OH), Bruce Barstow (Philadelphia), Matthew Mirapaul (Evanston, IL), Marc Welentychik (Richmond), Douglas Daughette (Birmingham), Kelly Mills (Raleigh), Diane Sullivan (Grand Falls, New Brunswick), Ron Haynes (Nashville), Brian Hoffman (New York City), Douglas Alderman (Herndon, VA), and Mark Bowers (Woburn, MA). On assignment in American Samoa, our 1986 winner Michael Binion was unable to participate this time, but we expect him back next year.

Predictably, there were many entries about the burning-in period for new equipment and a surprising number about community problems in divorce settlements, but none of these were finalists. Once again Tchaikovsky's 1812 Overture was the most frequently mentioned classical composition, and Macarena headed the list of other kinds of music.

Thirteen was lucky for Dr. Burns, who is assistant director of the Counseling Center at the University of Missouri, Rolla, and maintains a private practice as a psychotherapist. Triskaidekaphobia (abnormal fear of the number thirteen) has never shown up among his clients, but Dr. Burns dates his own mania for audio and music from 1971, when he first learned to appreciate good sound and when he first subscribed to STEREO REVIEW. His eclectic listening includes jazz, New Age, and contemporary music, but centers on rock-and-roll of the mid-Sixties.

The runners up listed below tell you some other things that are on the minds of our readers. Watch this space in January 1998 when we'll announce next year's contest. It will be the fourteenth, and fourteen may be your lucky number.

—William Livingstone

runners-up

"You spend \$12,000 for state of the art, and then the very next day they come out with the same thing on a 37¢ chip!"

—ROBERT H. BURTON, Evansville, IN

"This is a decision by the Homeowners' Association and is out of your jurisdiction."

—ELLIOT DENNIS, Plainsboro, NJ

"All it plays is 'Sympathy for the Devil', so if I were you, I'd stand back and watch out for lightning."

—MARK EVANS, Falls Church, VA

"I am being reasonable. I preferred my son's boombox in a double-blind listening test!" —MICHAEL ROSEN, San Francisco

"Do you think this'll impress Jodie Foster?"

—SVEN A. WHITE, Seattle

"It's the same dream every night. If I burn it, upgrades will come."

—DAVID J. ADAMS, Lake Orion, MI

"It's possessed. It keeps picking up conversations between Hillary and Eleanor."

—HAROLD DRAKE, San Carlos, CA

"It's about to pay the ultimate price for its lack of fidelity."

—WAYNE MERIDETH, Tujunga, CA



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CIRCLE NO. 32 ON READER SERVICE CARD

PERIPHERALS

PRODUCTS AND TRENDS THAT
GO BEYOND MAINSTREAM AUDIO/VIDEO

Bit Splicing

BY KEN C. POHLMANN

Back in the old days, musicians banged things together and blew into wooden tubes, and recording engineers recorded those sounds directly to analog disc. If a musician banged the wrong things together, two options presented themselves: You could record the entire record side over again, or you could hope that no one would notice.

Somewhat later, recording engineers switched to analog magnetic tape. This increased the number of options. For example, a musician could punch in a new musical phrase or even a single note, rerecording over the errant

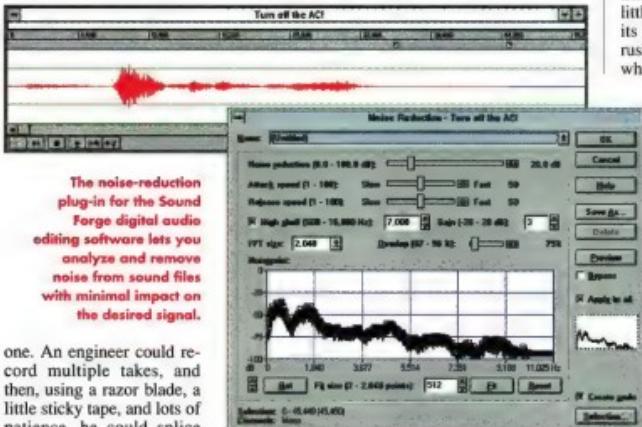
possibilities of record-production technology soon became irrevocably intertwined with the creation of the music itself.

Just as analog production was revolutionizing music recording, however, an entirely new technology was being readied that would make even the most sophisticated analog tape trick look both arcane and simple. Specifically, the advent of digital audio changed everything. When a musical performance is represented as a series of binary numbers, there is virtually no limit to how those numbers can be rearranged or processed. Almost over-

top music production are as open as a blank canvas.

Perhaps the easiest way to grasp the nature of music-editing software is to compare it with word-processing software. A word processor deals with a string of words, and it lets you cut, paste, move, copy, count, check, drag, drop, and do almost anything else to those words that you can imagine. Similarly, music-editing software lets you splice and dice musical notes. For example, you can cut, paste, copy, replace, reverse, trim, invert, fade in, fade out, smooth, loop, mix, merge, change gain and pitch, crossfade, equalize, filter, flange, phase, wah-wah, chorus, delay, echo, reverberate, synthesize, analyze, reduce noise, declick, compress or expand time, synchronize to video, trigger keyboards and samplers, and so on. In the hands of an experienced editing engineer, the possibilities are staggering. If there's a wrong note, the editor can find the correct note elsewhere and copy it over the mistake. If an entrance is a little late, it can be moved forward by trimming the preceding rest. If a note is held a little too long, it's easy to trim it back a little. If a vocal part is a little flat, it's a simple matter to raise its pitch slightly. If a part is a little rushed, it can be slowed down a bit while maintaining its pitch. All of those tools and others can be wielded against complete musical phrases, individual notes, and parts of notes. For example, it's now common practice to edit individual syllables in vocal parts.

Understandably, that kind of post-production sophistication is alluring to long-suffering musicians, and almost no musicians today make recordings without exploiting it. A typical recording, whether pop, jazz, or classical, contains hundreds of fixes. In fact, some musicians have completely altered their studio recording technique to take advantage of the editing software. They may divide their music into four- and five-bar chunks, then play each chunk separately, resting between each one to stay fresh. In this way, even though the original recordings may have been piecemeal or even filled with mistakes, it is possible to issue a musically "perfect" recording. The aesthetic questions are complex and numerous. Are contemporary production tricks a musician's crutch,



one. An engineer could record multiple takes, and then, using a razor blade, a little sticky tape, and lots of patience, he could splice together the best-sounding passages, producing a composite recording that was better than any of the parts. The art of analog tape manipulation reached its zenith in the late 1960's and early 1970's with albums such as Pink Floyd's *Dark Side of the Moon*, in which punch-ins, splicing, speed machinations, and all sorts of tape tricks were used to yield a highly creative result. Indeed, the creative

night, tape splicing became a lost art, and the cursor and mouse took over. Moreover, although early digital audio editing systems were supremely expensive and functionally limited, they followed the same curve as all other digital hardware — they became much less expensive and much more powerful. Today, with a PC and music-editing software, the possibilities of desk-

or an extension of the art? Can a heavily edited recorded performance convey the same intensity as a live performance, or can it perhaps be even more intense? Meanwhile, as the aesthetic debate rages, extensive editing remains the norm in modern record production.

The only thing more impressive than the capabilities of digital editing systems is their low price. Numerous software packages are available for personal computers. One of the most popular, and powerful, packages is Sound Forge release 4.0a (\$495), available from Sonic Foundry, Inc. This Windows program runs best on a Pentium processor with 32 megabytes of RAM, and a 2-gigabyte hard drive is recommended. In addition, a sound card is required along with some external means to store and transfer audio files. In other words, any respectable multimedia PC can handle Sound Forge.

As its name implies, Sound Forge is a sonic factory equipped with a wide range of tools for two-track audio recording, editing, processing, and analysis. The software lets you use your PC as a hard-disk digital recorder. Using on-screen VU meters, you can easily make a stereo recording from an original or previously recorded source, and then perform all sorts of editing.

Sound Forge lets you work on CD-compatible, stereo 16-bit, 44.1-kHz files, as well as formats using lesser word lengths and sampling rates. If your sound card is up to the job, Sound Forge will support sampling rates as high as 96 kHz. This comprehensive software package lets you operate in ten different time modes, including number of samples, absolute frames, measures, and beats, and four different SMPTE time codes. Sound Forge can also be used to perform audio file conversion. For example, in addition to AVI and WAV files for the PC, you can import and export AIFF files for the Macintosh and AU files for Unix systems. You can also export files in RealAudio format so that you can stream the files from your Web page. And you can edit the AVI audio tracks of a video program or create samples to play on MIDI instruments.

As with most hard-disk editors, Sound Forge lets you highlight portions of the music, ranging from a single sample to the entire piece, and perform all sorts of processing. For example, you might take a dry recording and add a bit of reverberation to it; unlike the cheesy reverb found in many editors, Sound Forge's is quite good,

with numerous presets emulating different acoustic spaces and effects. Perhaps one of the most interesting algorithms is time compression and expansion. You could convert a 70-second piece to 60 seconds without changing the pitch, say. Or shift music up or down a standard musical interval (without changing its duration) if you need a key change. If you like to listen to

adjust the amount of noise attenuation, attack and release of attenuation, and perhaps the frequency envelope of the noiseprint. Next time you make a secret recording on a subway train, you can use this plug-in to clean up the tape before playing it to the jury.

The plug-in can also be used to remove clicks and pops from a vinyl recording. You can perform click re-

Any respectable multimedia PC can handle Sound Forge, a sonic factory with tools for two-track digital audio recording, editing, processing, and analyzing.

CD's in your car but the wide dynamic range forces you to constantly raise and lower the volume, Sound Forge can help. Simply dial in a little dynamic compression and burn a new, compressed CD-R. While you're at it, you might want to boost the bass, rearrange the track order, or add a vocal part.

Sound Forge release 4.0a has tons of tools, but more serious users will want to check out some of the plug-in software, available at extra cost. These software modules integrate perfectly with the existing software, adding new functions. The spectrum-analysis plugin (\$149) is great for analyzing the properties of sound files. This software performs a fast Fourier transform (FFT) analysis so that a time-based signal can be examined in the frequency domain. Specifically, you can look at a spectrum graph either along one frequency axis or along multiple axes over time in a "waterfall" display. Alternatively, you can plot signals as a sonogram, showing spectral and amplitude variations over time. (I used this display to compare a Dolby S recording with a MiniDisc recording in the March issue.) Advanced users will appreciate the ability to select the FFT sample size and overlap and to apply different smoothing windows.

The noise-reduction plug-in (\$249) is also terrific. It can analyze and remove noise such as tape hiss, electrical hum, and machinery rumble from sound files by distinguishing the noise from the desired signal. It analyzes a part of the recording where there is noise, but no signal, and then creates a noiseprint by running an FFT on the noise. Using the noiseprint as a guide, the algorithm can remove noise with minimal impact on the desired signal. For best results, you should carefully

remove using an automatic feature that detects and removes all clicks, or you can work manually with individual glitches. The algorithm allows a number of approaches. You can replace the click with signal surrounding the click or with a signal from the opposite channel, or use a pencil tool to draw in a replacement waveform. The results can be amazing.

Clearly, software products such as Sound Forge have tremendous applications in the professional audio environment. Radio and television stations, recording and post-production studios, and any facility that records and edits sound can use software like this. In fact, this kind of package replaces racks of dedicated hardware, probably doing the same work with higher fidelity, and doing it faster as well. Such software is also a hit in home studios. A spare bedroom can be transformed into an audio studio with sophisticated signal-processing capability. If you are embarking on a project to de-noise all your old LP's and record them to CD, or record and produce a CD of your church choir, or create sound effects for your home videos, these desktop systems will do the trick. And I would venture to say that any computer audio enthusiast should check out applications like Sound Forge. Even if you aren't aiming for a Grammy, I guarantee that they'll teach you volumes about music production and give you an appreciation of just how far we've come since the old days.

Sonic Foundry, Inc., Dept. SR, 100 S. Baldwin St., Suite 204, Madison, WI 53703; telephone, 1-800-577-6642; www.sfontry.com

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“ All in all, this is a lot of speaker for \$1,500 a pair – which is precisely the point of CSW’s factory-direct strategy...As soon as I fired the Towers up, it was evident that they threw a big image. The Towers’ soundstage was noticeably deep and solid on most material. **“** *Audio*

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AUDIO Q & A

IAN G. MASTERS

Disabled Subwoofer Output

Q I have no problem getting adequate bass from my powered subwoofer when watching movies in Dolby Pro Logic mode, but I'd like it also to work when I am listening to music. When I switch the processor to its bypass mode, however, its subwoofer output is disabled. Is there a way to hook up the subwoofer so that it works in all modes?

JOHNNY TSAN
San Carlos, CA

A The easiest way is to feed the subwoofer from one of the main front channels rather than from the processor's subwoofer output. Most subwoofers have provisions for high-level (speaker) inputs, so if you drive the subwoofer from one or both of the front speaker outputs of your amplifier (depending on what sort of inputs are provided on the sub), it will provide bass for those channels regardless of what mode the processor is in.

Impedance Mismatch

Q Some months after I bought my speakers, I noticed that they were rated at 6 ohms impedance. I have a receiver and a power amplifier, and both are specified to work with 8-ohm speakers. Will there be a problem if I use my speakers with either of these components?

ROBERT CAMARGO
East Newark, NJ

A Theoretically, it is inadvisable to drive speakers with a lower impedance than the amplifier is designed to "see," as a lower impedance increases the current in the amplifier's output stages, which could cause damage. In reality, impedance ratings for both amplifiers and speakers are only approximate, so the small mismatch in your case will probably do no harm.

Double Decoding

Q My system consists of a hi-fi VCR that is connected to a Dolby Pro Logic processor whose main (left and right front) outputs are fed to a receiver with its own Pro Logic decoder. Will there be any surround information for the receiver to decode if the external processor is functioning?

KIM QUALL
La Crescent, MN

A Ideally, no. The Pro Logic processor is supposed to detect and remove any out-of-phase information from the main channels and direct it to the surrounds. Thus, there should be nothing for the second de-

coder to detect. But nothing's perfect, so some leakage will inevitably occur, letting through some out-of-phase signal for the receiver to decode. Double decoding is not recommended, however, for several reasons, so keep the receiver in stereo mode.

Cracking Speakers

Q Lately I've been hearing a sort of cracking sound from my speakers when I turn up the volume about halfway. The sound is very brief, lasting for only a split second, and it's not the fault of any one CD because it happens often. The speakers are rated to handle 200 watts on peaks, and my receiver output is 100 watts per channel. What do you think causes this problem?

MICHAEL FLETCHER
Marshfield, MA

A If the cracking noise occurs only when you are actually adjusting the level, it might be caused by something as simple as a dirty potentiometer, which could be corrected by a shot of contact cleaner. Since you're concerned about the match between your amplifier and speakers, however, I assume that it's an ongoing problem at a particular high sound level, in which case I think your speakers are "bottoming."

Things would be much simpler if we could choose the appropriate amplifiers and speakers just by matching up the numbers, but how specs relate to performance is complicated. The 100-watt output of your receiver, for example, means that it can put out at least that much power continuously over a long time without melting; in short bursts, it can produce several times as many watts. And turning the level up halfway doesn't mean you're cranking out a constant 50 watts. That control simply modifies the input level so that the amplifier and speakers downstream produce the volume you desire. But if the source signal is high, the receiver's amplifier section could develop its full output with the level control at 9 o'clock. A low-level source might not drive the amp to 100 watts even with the knob cranked all the way up.

Moreover, in most cases the speaker power-handling ratings might just as well be pulled out of a hat. There are no agreed-on standards for power-handling capability, and the specs generally ignore sensitivity — the amount of acoustic output for a given input. So if you have a speaker with low sensitivity — that is, it needs lots of watts from the amp — and low power-handling capability, you might well overdrive it whatever the numbers say.

And that's what I think you're doing. The higher the instantaneous signal level fed to the woofer's voice coil, the more it is offset from its resting position in the field of the speaker's magnetic structure. Driven too far, it will hit the back of the magnet's housing with a loud pop. If this only happens occasionally, it will probably do no damage. But in the long run, the only remedy is to get speakers that can handle the power — or to turn down the volume.

THX and Digital Discs

Q I have been having an argument with my brother over the difference between THX-encoded and Dolby Digital-encoded laserdiscs. I've read that THX is an enhancement of Dolby Pro Logic, while he thinks that a THX-encoded disc played through a Pro Logic decoder is somehow digital. Who's right?

AARON M. HOLMAN
Independence, OH

A You both are, sort of. First of all, the THX logo on a laserdisc means that both the audio and the video mastering were done under very carefully controlled conditions. It doesn't automatically mean that any particular audio encoding system has been used — there is no such thing as "THX encoding" — but virtually all laserdiscs contain a Dolby Surround-encoded two-channel soundtrack, and recent discs may incorporate digital multichannel surround as well. Even the Dolby Surround soundtrack is recorded digitally on all but the oldest discs, so your brother is right about that. Until recently, THX-certified playback systems were designed to enhance basic Dolby Pro Logic surround, but there are now THX standards for digital surround systems too.

Strident Voices

Q When I watch the local news on TV, I notice that the anchor's voice has a sharp, unpleasant quality, especially when it comes to words with "s" sounds in them. Yet when the station played a tape of the same anchorman recorded elsewhere, it sounded fine. I listen through the built-in speakers of my new television set. Are they the problem? If not, what can I do to clear things up?

BOB HENSON
Miami, FL

A It might well be that your TV's speakers have a frequency anomaly in the upper midrange, where sibilants occur, which tends to emphasize these sounds to an unpleasant degree. A lower-quality recording made outside the TV studio could sound better than the studio broadcast as a result of compensating errors in which the speakers' response peak flattens out the curve of the remote recording.

But I think it's more likely that your set's okay and that the fault is at the TV station. Some broadcasters are not shy about doctoring their signal in order to create a more impressive or dramatic sound, and there may be some equalization on the anchor's microphone to give it an ersatz sense of clarity that

comes across to you as sharpness on sibilants. Or it may be accidental: Many on-air personalities wear microphones clipped to their lapels, and since the person is basically speaking away from the mike, the sound would tend to be somewhat muffled if the treble weren't boosted a bit. The amount of boost can be a matter of guesswork. Too much, and the effect is likely to be similar to what you report hearing.

Unfortunately, there's not much you can do about it other than complain to the station — or change channels. It would be virtually impossible to add an external equalizer to your TV, and even if you could, you'd have to be constantly turning it on or off depending on whether the sound at a particular moment was good or bad.

Amp Thumps

Q The sound of my new amplifier is great, but I'm having a problem with audible thumping when it is turned on or off. The amp doesn't have speaker switches, so I can't shut them off to prevent this. Could the thumping cause damage, or is it just a minor annoyance that can't be helped?

STEVE CLINGAN
Aurora, IL

A If the thumps are relatively quiet they should not cause a problem. If they're loud enough to make you worry about the health of your speakers, it should be an easy matter to insert an on/off switch in the speaker lines to avoid adverse effects.

Tubes and Tables

Q First, does a tube amplifier have to be connected to a tube preamplifier, or will any preamp work? Second, should a rarely used turntable be played every so often to keep its internal components in shape? Is there any maintenance I should be doing to make sure the turntable will provide me with many more years of listening enjoyment?

CURTIS CONNOR
Pittsfield, MA

A Electrically, the line-level inputs and outputs of tube and transistor equipment are the same, so mixing them should not be a problem. As for your turntable, exercising it occasionally can't hurt, but I don't think it's really necessary. The main thing is to keep it covered so that the works don't get dusty. If it's a belt-driven model, however, the belt can eventually deteriorate, so it's a good idea to supply yourself with an extra couple of belts if you can (keep them sealed until you need them). While you're at it, an extra stylus for your phone cartridge would be a wise investment as well. Who knows what will be available ten years down the road?

If you have a question about audio, send it to Q&A, Stereo Review, 1633 Broadway, New York, NY 10019. Sorry, only questions chosen for publication can be answered.

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SIGNALS

KEN C. POHLMANN

The Holy Grail

After a long gestation period, DVD-Video has finally arrived. Although its ultimate success or failure is still to be determined, early reports are promising. When it was first announced, everybody loved DVD and expectations were high — dangerously high. Then, after its launch was delayed, frustration and pessimism set in, and for a while nobody loved DVD. Now that the players and several dozen movies are available, early adopters seem to approve of DVD's clearer-than-clear pictures and rich movie sound. In short, although the DVD marathon has a long, long way to run, at least the race is under way.

Some of the design engineers who labored hard to bring forth first-generation DVD-Video are turning their attention to recordable and erasable DVD, but these products will be targeted at professional multimedia authoring and personal-computer applications. The next big consumer product will be DVD-Audio. Whereas specifications for DVD-Video are mostly carved in granite, however, DVD-Audio's specifications remain tentative tracings in sand. Although several proposals are being touted, none has emerged as the winner and most audio manufacturers are stuck in a funk, unable or unwilling to energetically push an agenda for DVD-Audio's future development.

In my simple mind, the specifications for DVD-Audio seem crystal clear. The format must be bold, because today only bold products can successfully compete. Yet it must not be *too* bold, because extravagant products are ultimately too costly to prosper. More specifically, DVD-Audio must entail incremental improvements that make it a logical successor to CD and mark it as clearly superior.

Although it is currently fashionable to disparage the CD, and claim that its sound quality is stunted and harsh, the fact is that the CD is a fabulously good consumer playback format with fidelity that far surpasses that of all other consumer playback systems, analog or digital. While DVD-Audio could, and should, provide even better sound quality than CD, in reality few consumers would be able to hear any difference, and fewer still would agree to dump their CD players

solely for the fidelity improvement offered by DVD-Audio. Beefing up the sampling frequency and digital word length won't be enough. So exactly how should DVD-Audio's designers proceed?

User convenience isn't really an issue — CD's have that covered — and few people would need a dramatically longer playing time. DVD-Audio might provide song titles and liner notes, but actually the old CD specification has already been upgraded to provide text capability, and new CD's and players will begin to support the CD-Text feature. In any case, things like titles aren't enough to win people over to DVD-Audio. Consumers simply won't care if a two-channel DVD-Audio format has a higher sampling frequency, a longer word length, and other largely extraneous perks. What will spark their interest is more channels. Specifically,

DVD-Audio should have

5.1 channels. Fewer would make it inferior to to DVD-Video; more would make it incompatible.

home theater and DVD-Video have forever moved us away from two-channel stereo and into the realm of 5.1-channel playback, mostly through Dolby Digital (AC-3) surround-sound processors. It will be imperative for DVD-Audio to match that capability. Fewer channels would make it inferior, and more channels would make it incompatible. DVD-Audio, then, should offer 5.1 channels of music playback.

Moreover, as noted, DVD-Audio must allow potentially better sound than CD. To achieve this, its maximum sampling frequency must be set at 96 kHz and its maximum word length at 24 bits. These figures were not arrived at idly, and in my opinion they verge on the extravagant, yet they are the best choices. Research suggests that only 1 percent of the population can hear frequencies up to 25 kHz; thus the 48-kHz bandwidth afforded by a 96-

kHz sampling frequency is generous to say the least. Research also suggests that 22 bits (even without the benefit of noise-shaping) can provide noiseless coding. In fact, at this time it is impossible to design analog electronic circuits, such as power amplifiers, with a dynamic range greater than a 22-bit equivalent. Nevertheless, 96 kHz and 24 bits make sense as maximum specs (the DVD-Audio format should also allow lower figures when they are sufficient) because they're already written into the DVD-Video specs and represent no-compromise audio performance.

Is this a waste of bandwidth? Certainly, and that's why DVD-Audio should also employ lossless data compression (sometimes called data packing). Unlike the "lossy" compression used in MiniDisc and some other formats, a "lossless" process reconstructs the original data *exactly*, without any change in bit values. Because most recorded music will not have significant signal content above 20 kHz, and because of redundancy among the six channels, the data-compression algorithm should be able to achieve a significant reduction in data rate. By my calculations, with lossless data compression, a 5.1-channel DVD-Audio disc with five 96-kHz/24-bit channels and one 24-kHz/24-bit low-frequency channel should be able to store 200 minutes of music on a single side. From an audiophile point of view, that would be the Holy Grail of formats.

The next question in our design of a hypothetical DVD-Audio format is one of compatibility. First, DVD-Audio players should be designed to play back CD's as well as the Dolby Digital audio portion of DVD-Video discs — many music concerts will be available on DVD-Video, and it would be nice to be able to listen to them. Likewise, future generations of DVD-Video players should be designed to play DVD-Audio discs. Since the encoding scheme chosen for DVD-Audio will probably not be AC-3 as used for the audio portion of DVD-Video, current DVD-Video players would not be able to play future DVD-Audio discs, and future DVD-Video players could do so only at added cost. Any way you slice it, current CD players will not be able to play DVD-Audio discs because they are unable to recognize the small data pits or the 5.1-channel coding. Moreover, I do not see how a two-channel CD-compatible data layer could be pressed into a DVD-Audio disc. The 0.6-millimeter thickness of a DVD substrate is completely wrong for CD players with a focal length of 1.2 millimeters (the thickness of a CD substrate).

Whatever its final specifications, DVD-Audio offers a breathtaking opportunity to create the mightiest of all audio formats. Audio manufacturers should not shrink from the task, or cower before the grand possibilities. Let's make DVD-Audio awesome. □



From Hollywood to Main Street, it's being heralded as the beginning of a home entertainment revolution. It's called DVD Video. With a digital picture that's better than laser disc, and state-of-the-art digital audio, DVD is destined to change your home into a, well, you get the picture. Now movies meet the digital age. And Philips Magnavox is there to help make the introductions.



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TECHNICAL TALK

JULIAN HIRSCH

Audio's Well-Worn Shoes

Most audiophiles, including me, remember their early home audio systems with at least some degree of nostalgia. That is especially true for those of us whose initial infection with the hi-fi bug dates back a few decades. Actually, in those primitive times of the late 1940's, the performance of most available audio components, including some bearing highly regarded pedigrees, would be considered rather crude or even deficient by today's standards. Fortunately, then as now, there was another option for experiencing good music — attending live performances. Live music is, should be, and I hope always will be the ultimate standard for sound quality.

But as a rule early audio hobbyists were not seriously disturbed by the minor flaws and limitations of their hi-fi components. After all, what did they have to compare them with? The most accessible alternative sources of music, AM radio and 78-rpm records (both the LP record and FM radio were in their infancy), were often worse. It was analogous to disregarding the pronunciation or grammar of a talking dog simply because its ability to speak at all is so remarkable!

Although a few audio hobbyists and a fledgling hi-fi industry existed even in the 1930's, the hi-fi industry as we know it made its appearance in the years just after World War II. The early hi-fi enthusiasts, who coined the term "audiophile" to identify themselves, had no difficulty in hearing and appreciating the differences between the audio components of the postwar years and the 78-rpm records and crude reproducing equipment that had preceded them.

Even in those days, audiophiles held opinions every bit as strong as they do today (and often just as unfounded). The merits, or lack of same, of the latest loudspeaker, tuner, amplifier, or record player were the subject of many a heated discussion. As is still the case today, the sonic properties of loudspeakers were quite logically the focus of much attention.

In the prewar years, speaker systems as we now know them were virtually nonexistent. Radios had spaces reserved for unbaffled loudspeakers. Whether these were small or fairly large, it made little differ-

ence in the ultimate sonic "fidelity" as we now use the term. In sharp contrast, even the earliest audiophile speakers had their own sealed or ported enclosures. Having its own enclosure, which is now characteristic of even the cheapest audio products, became one of the distinguishing marks of a "hi-fi" loudspeaker. Unfortunately, enclosure type alone is not a reliable indicator of speaker sound quality.

Many (possibly most) people tend to become accustomed to their systems' sound character over a period of time, especially if the sound is reasonably good. A recent letter from a reader comments on this phenomenon. He grew up in a home where his father had a pair of good speakers of 1960's vintage. He describes their sound as "rich and full, with a savory tonal quality." He adds that they are "neither harsh nor dull, and . . . have

**New shoes, or new speakers, are likely
to look better, last longer, and in the long run
give more solid satisfaction than
an old, worn-out pair that has seen better days.**

amazing crankability," presumably referring to their ability to handle high volume levels without obvious distortion.

My correspondent says that he is now in the market for the components of a music system for his own new home. He has auditioned many excellent speakers but has found nothing within his budget that appeals to him as much as his father's old speakers. He wonders if this is because he grew up listening to them and is accustomed to their sound. Or are they, as he puts it, "truly outstanding speakers that have stood the test of time?" Finally, he wonders where he can find a pair "just like them . . . without poisoning Dad's coffee?"

Please, sir, do nothing rash! No, it is highly unlikely that there is a mint-condition pair of those classic old speakers lying around in a dusty garret somewhere. It is equally improbable that there is any 1997-vintage speaker available that would sound just like your dad's system. But I

can assure you that there are a number of affordable speakers on today's market that will sound as good as or better than the ones you have grown up enjoying. In other words, don't expect to find a sonic clone of dad's speakers — look for better ones!

An analogous situation would be owning a pair of shoes that have seen better times but are well broken in and comfortable. When the heels are worn down, the shape is distorted, and the finish of the leather is no longer restorable, it is probably time to get a new pair of shoes. Unfortunately, the new shoes may well feel uncomfortable at first, until they're broken in so that they fit the shape of the wearer's foot.

Few people would consider searching for well-worn shoes of the same type to replace their existing worn-out shoes. Similarly, there is little point in becoming unreasonably attached to an old speaker that has become unavailable or unusable. Today's speakers are better than ever before by almost any objective or subjective ears. All you have to do is give your ears a chance to convince you of this.

The analogy between comfortable, well-worn shoes and old speakers whose sound is familiar and satisfying is surprisingly close. There is often little need to replace either pair if it is still in good functioning condition. After all, a familiar, well-worn pair of shoes, if they have

been kept in good repair and free from visible deterioration, can be as satisfying as they ever were — and sometimes a lot more comfortable than a new pair that initially feels "different."

Nevertheless, new shoes, or new speakers, are likely to look better, last longer, and in the long run give more solid satisfaction than an old, worn-out pair that has seen better days.

I don't wish to stretch this analogy too far, though I think it has considerable validity. A more important consideration is that today's speakers, in general, are markedly superior even to those of just a few years ago. With ever increasing frequency (pun intended), I find that the measurable and audible performance of today's loudspeakers, in every size and price range, is markedly better than that of their predecessors. They are certainly good enough that there is little reason, as my correspondent put it, to "poison Dad's coffee." □

"...by a wide and clearly audible margin, the Micro90t is the best small-satellite home theater speaker system I have ever reviewed."

—David Ranada, Stereo Review, February 1997

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The experts at Stereo Review listen to literally hundreds of home theater speakers each year. So it stands to reason that the Micro90t must be pretty special to warrant such praise.

The reason for this enthusiasm? Good old-fashioned engineering know-how.

Take the Micro90 satellites, for example. They feature a die-cast aluminum housing of incredible strength and rigidity. So the drivers' energy is projected as pure, clean acoustic output instead of being wasted as cabinet vibration. The result: a satellite that can fit in the palm of your hand, and still fill a room with astonishing sound.

Its anodized aluminum tweeter with AMD handles lots of power, yet reproduces highs with virtually zero distortion. And its swivel-mount pedestals make for simple shelf or wall mounting. The Micro90 powered subwoofer, with its clean 75-watt amp and 8-inch DCD™ bass unit, produces ample amounts of deep, tight, powerful bass.

Add the tonally matched Micro90 center channel and either direct or diffuse-field surrounds and you've got a system that beats all other satellite home theaters "by a wide and clearly audible margin." You can test-listen the Micro90t at your local Boston dealer. But rest assured, you won't be the first to listen with a critical ear.



This Micro90t home theater system includes:
Two Micro90 satellites, sonically matched
center channel, powered subwoofer, and a
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Toshiba SD-3006 DVD Player

DAVID RANADA • TECHNICAL EDITOR

Toshiba developed many of the core technologies behind the DVD system, so we were more than normally excited by the arrival of one of its DVD players for testing. That player, the SD-3006, is the more expensive of Toshiba's first two models. It has two parallel-driven pairs of analog RCA-jack audio outputs. You get stereo audio out of them when you play a CD and Dolby Surround matrix-encoded two-channel audio when you play a multichannel DVD. (The conversion from DVD's discrete multichannel format to matrix signals that can be decoded by a Dolby Pro Logic decoder is performed internally.)

If you are blessed with a system containing a Dolby Digital decoder, you can get full multichannel DVD audio by hooking the player's PCM/AC-3 coaxial digital audio output to the device containing the decoder. You have to turn the analog outputs on or off with a rear-panel switch; which setting you should use depends on your hookup and whether your system can perform Dolby Digital decoding. There is no optical digital audio output, nor, for that matter, a headphone output.

On the other hand, the SD-3006 is one of the very few DVD players

equipped with component-video outputs. The \$599 SD-2006 does not have component-video outputs and offers only one pair of analog RCA-type audio outputs.) If you have a monitor that can accept these signals — some very expensive front-projection TV systems and professional studio monitors can — they will provide the best possible DVD picture quality since the signal paths between a player's component-video outputs and the picture tube are subject to the least amount of processing, which can degrade quality. Second best, and it's a very close second, is the video quality provided by the SD-3006's S-video output. Last comes the standard composite-video output. With this player you have to choose, again via a rear-panel switch, between using either the component-video outputs or the other two; when the S-video or composite-video out-

DIMENSIONS: 17 inches wide, 3½ inches high, 12½ inches deep

WEIGHT: 7½ pounds

PRICE: \$699

MANUFACTURER: Toshiba America, Dept. SR, 82 Totowa Rd., Wayne, NJ 07470; telephone, 1-800-631-3811

puts are on, the component-video outputs are off.

When it comes to disc-navigating features, the SD-3006 is better equipped than the other DVD players we've seen, top-of-the-line or not. It has two fast-scan speeds (twice and eight-times normal), three slow-motion speeds (half, one-eighth, and one-sixteenth normal, forward only), and still-stepping (forward only). Cuing a title, chapter, or CD track can be performed using the remote control's numerical keypad to enter cueing points directly. The player understands both common syntaxes for selecting track No. 10 and later tracks: Press the +10 key, or enter each digit individually. Nice.

Repeat modes include title, chapter/track, and A-B segment. Programmed playback is available for as many as thirty program segments, and the sequence can be displayed on screen. The SD-3006 also has the standard facilities for selecting subtitle display, subtitle language, on-screen-display language, aspect ratio, camera angle, and parental lockout.

Front-panel controls are extremely basic: power on/off, drawer open/close, stop, play, pause, and track/chapter skip forward and backward. The remote contains all the other controls. Its numerical keypad, unfortunately, is underneath a sliding panel, as are the slow-motion, programming, and repeat controls. The remote's exposed buttons are gratifyingly differentiated by size, shape, color, and location, which makes it one of the best DVD remotes on the market so far.

The SD-3006 is one of those DVD

players that will not play a recordable CD (CD-R) — it won't even acknowledge the presence of a CD-R in its disc drawer. Since our special home-brew CD-player test signals (see "Testing Testing" on page 63) are still available only in that disc format, I had to improvise with the few dithered test signals scattered over various commercial test CD's. Our excess-noise measurements were made with Dolby Lab's new Dolby Digital test DVD. The excess-noise test signals were encoded in the Dolby Digital system's two-channel mode (as opposed to the more familiar 5.1-channel mode). Unlike our test CD-R, which contains a quasi-20-bit test signal incorporating noise-shaped dither, the Dolby test disc's 18-bit and 20-bit signals, when decoded properly by a DVD player's internal Dolby Digital circuitry, produce signals of true 18- or 20-bit resolution without the use of noise-shaped dither. Our excess-noise calculations have been adjusted accordingly. The results indicate that the player has a background noise level typical of a digital-to-analog (D/A) converter with resolution a little better than 16 bits. Our standard A-weighted noise test had to be finessed by using the last few seconds of a fade-to-dither test on the CBS CD-1 test disc, which is available only in the de-emphasis-off (normal) mode.

The Dolby test DVD also enables testing of video interference leaking into the analog audio outputs. Over a background of 20-bit dither, the disc cycles through a series of video test patterns whose signal leakage can cause audio side effects (at least they would with a laserdisc or VHS Hi-Fi tape). The SD-3006 did extremely well in this test, showing no change in noise level with each change of video pattern. (I can't wait to try this with other players.) On the whole, then, the SD-3006's analog audio outputs were quite clean and comparable to those of a typical CD-only player of the same price.

Missing from our data is a full set of video measurements of the kind we used to make on laserdisc players. The main reason for this is the lack of a suitable test DVD: one whose video test patterns are known to be of digital origin, of verifiable quality to begin with, and of sufficient variety to test all the relevant parameters. The one "test" disc we did have was more of a demo DVD made by Sony and intended for letterbox playback. This disc



did turn up a couple of minor video problems with the SD-3006.

On what we now consider one of the acid tests of a DVD player — a continuous gray scale, which produces a screen that is black at the left and goes through every shade of gray to end up white on the right — the SD-3006 produced faint vertical bands, which indicate nonlinearity in the video D/A converters. The bands were particularly evident on the left, darker side of the test pattern, where nonlinearity is more visible than in brighter areas. Sure enough, a waveform-monitor examination of all of the player's outputs (composite, S-video, and component) showed areas of "non-monotonicity" where the video D/A waveform remained level when it should have been rising.

Nevertheless, the Toshiba player's video D/A nonlinearity was invisible as such in normal program material. Actually, it was about par for the course; we've seen only one player with superior performance and one player that was decidedly worse. When video D/A nonlinearity is severe, it is most easily seen as weird "contouring" effects during fade-ins and fade-outs. We saw none of this with any of the movies we played on the SD-3006.

In what is turning out to be another acid test for a DVD player — horizontal resolution — the SD-3006 produced more anomalous results. While the player did manage to generate vis-

ible detail at the limits of the Sony DVD's test patterns (approximately 480 lines of horizontal resolution from all outputs), the high-resolution test patterns were contaminated by spurious video frequencies. These showed up as larger-scale vertical striping superimposed on the fine-pitched vertical stripes of the resolution tests. The effect looked like the video equivalent of digital audio "aliasing," in which spurious low frequencies are generated by too low of a sampling rate. There is ample opportunity for aliasing or similar effects to occur in a DVD player in the extensive processing that converts the recovered MPEG-2 video data into conventional video signals.

This problem was not obviously visible with the normal movie program material we played, even with scenes containing elements chosen for their resemblance to the test patterns: Bill Paxton's jacket in *Twister* and Dorothy's tightly checkered dress in *The Wizard of Oz*. These images did sometimes produce moiré effects, but most of those were probably caused by limitations in the television scanning process, not any performance deficiencies of the SD-3006. (You can also ex-

MEASUREMENTS

CD AUDIO PERFORMANCE

Measurements made with a variety of test discs (see text).

MAXIMUM OUTPUT 1.97 volts

FREQUENCY RESPONSE

(20 Hz to 20 kHz)	
de-emphasis off	+0.05, -0.39 dB
de-emphasis on	+0.05, -0.19 dB

CHANNEL SEPARATION

(undithered test tones)	
100 Hz	144 dB
1 kHz	126 dB
10 kHz	108 dB

NOISE LEVEL (A-wtd, see text)

de-emphasis off	-93.5 dB
-----------------	----------

DISTORTION

at 0 dBFS*	0.0047%
at -20 dBFS**	0.022%

LINEARITY (at -90 dBFS*)

	+0.26 dB
--	----------

EXCESS NOISE

(with-signal, Dolby test DVD)

16 bits (EN16)	+2.2 dB
18 bits (EN18)	+10.6 dB
20 bits (EN20)	+22.23 dB

PITCH ERROR

	+0.17 cent**
--	--------------

DEFECT TRACKING

(Pierre Verany test disc)	1.25 mm
---------------------------	---------

* decibels referred to digital full-scale

** 1 cent = one-hundredth of a musical semitone

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pect occasional cross-color "rainbow" effects with such tightly patterned images if you use the player's composite-video output.) Still, the "aliasing" problem originates with the player and not the test disc, as we have seen much better resolution-test performance from other DVD players of different brands when using the Sony test disc. And we cannot rule out the existence of cinematic images where this effect will be as obvious as it was with test patterns.

In other video areas, the SD-3006's performance was just about average for a DVD player, which means obviously superior to even the best laser-disc players and absolutely superb compared with VHS VCR's. Color accuracy was as good as that of our lab's video test-signal generator, and luminance and chrominance noise levels were very low.

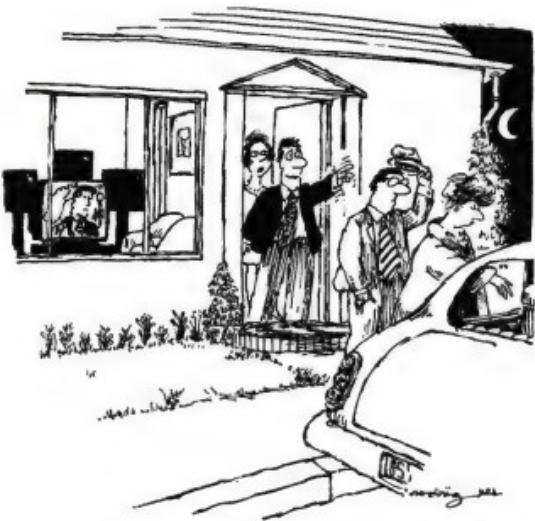
Operationally, the SD-3006 falls into the middle range of the players we have examined. It has better fast-scanning and slow-motion features than most, making it much easier to cue to specific moments within scenes. Only rarely did I miss the ability to play backward in slow motion or to still-step in reverse.

I was more frequently annoyed by

the location of the slow-motion button beneath the remote's sliding panel. Placing it outside next to the other transport controls, however, would have disturbed the otherwise pleasing symmetry of the button layout, which makes the handset equally suitable for left- and right-handed users. The only other severely misplaced button was the subtitle on/off control (right underneath the open/ close button).

Also bothersome was the player's inability to remain in pause after you have it skip to the beginning of a track or chapter. As soon as the player cues up to the called-for location, it goes immediately into play. This was more irksome with CD playback — CD players normally remain in pause mode until affirmatively released — and may hinder accurately cued tracking of the SD-3006's outputs.

While I was surprised at the results of the horizontal-resolution test — Toshiba, of all manufacturers, should know how to nail this test — my overall opinion of the SD-3006 is quite positive. Its combination of smoothly operating disc-navigation features, multiple audio and video output formats, and fine video performance recommend it to anyone interested in exploring the DVD system. □



"... Brad? Lucille? Wait! I'll bridge the amplifier — maybe that will improve the soundtrack."



DARREN HOUCK

PSB Century 400i Speaker

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

The Canadian-made PSB loudspeakers carry the initials of their designer, the company founder, Paul S. Barton, who has earned a solid reputation for the quality of his products. The PSB line, which has grown considerably in the past few years, currently comprises a broad range of speakers at prices ranging from less than \$200 a pair to more than \$2,000 a pair.

The Model 400i is part of the new eight-model Century series of "tuned-port" PSB speakers, falling roughly in the middle of the group's size and price range. A compact two-way system in an attractive cabinet finished in dark cherry or black ash woodgrain vinyl, it has a removable black cloth grille covering the entire front panel.

Considering its modest dimensions and price, the speaker is surprisingly heavy, weighing about 18½ pounds.

The grille snaps off to reveal the drivers, a ¾-inch soft-dome tweeter at the top and below it a (nominal) 6½-inch woofer, whose actual radiating

DIMENSIONS: 16 inches high, 8½ inches wide, 11½ inches deep

WEIGHT: 18½ pounds

FINISH: dark cherry or black ash woodgrain vinyl

PRICE: \$399 a pair; optional SP-25 stands, \$89 a pair

MANUFACTURER: PSB, Dept. SR, 633 Granite Ct., Pickering, Ontario L1W 3K1; telephone, 1-800-263-4641

diameter is about 5½ inches. The bass vent has a flared opening (2 inches in diameter) at the bottom of the front panel. On the rear of the cabinet is a pair of recessed gold-plated binding posts that accept lugs, wire ends, or single or dual banana plugs.

The Century 400i comes with basic installation and positioning instructions. Its specifications include a frequency response of 55 Hz to 21 kHz ±3 dB, a crossover frequency of 2.5 kHz, a sensitivity of 89 dB (1 watt input at 1 meter), recommended input power of 15 to 125 watts, and a nominal impedance of 6 ohms.

Like most speakers of comparable size, the PSB Century 400i is recommended for stand-mounting, with the tweeters at or near ear level for a seated listener. The optional SP-25 stands shown in the photo are 25 inches high and very heavy. We used our own stands, which put the tweeters about 39 inches from the floor, close to the recommended height.

The averaged room response of the two speakers, which we placed 8 feet apart and 3 feet from the wall behind them, with the left speaker about 12 feet from the microphone, showed a typical variation of ±4 dB from 60 Hz to 10 kHz and an additional 4-dB decline from 10 to 20 kHz. The horizontal angular coverage, measured at 1 foot from the tweeter over a ±45-degree angle to the speaker's forward axis, was very uniform (±2.5 dB) from 60 Hz to 10 kHz, falling off by 15 dB from 10 to 20 kHz. In this measurement, the on-axis response varied only ±1.5 dB from 70 Hz to 20 kHz.

The quasi-anechoic MLS frequency response was measured from a single speaker at distances of 1, 2, and 3 meters. The response curves were virtually identical at the three distances, with a typical (and very good) variation of ±3 dB from 300 Hz to 20 kHz.

System sensitivity measured 91 dB sound-pressure level (SPL) at 1 meter with a 1-watt input, a little higher than the 89-dB rating. The nominal impedance rating is 6 ohms; our measurement showed a minimum of 4.5 ohms at 150 to 200 Hz and a dip to 5 ohms at 40 Hz, with maximum readings of 16 ohms at 75 Hz and 1.8 kHz. In view of its good sensitivity, the PSB 400i should be easy for any amplifier to drive.

None of these measurements deal with the speaker's bass response, which in a typical home installation is greatly influenced by the room bound-

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aries and furnishings. The manufacturer's ratings suggest a lower limit of 50 to 55 Hz, which, though unlikely to rattle small objects in the room, represents very creditable performance for a single woofer of the size used in this speaker.

For the bass-response measurement, we normally place the microphone close to the woofer cone to minimize the influence of the surroundings on the response. In addition, the response of a ported system such as this one must also be measured at the port, which is the principal source of the lowest frequencies. We use two identical microphones for this purpose, one located close to the cone and the other at the port. The two response curves are measured simultaneously with a frequency-swept signal from the Audio Precision System One, and after adjustment of their relative amplitudes in accordance with the relative areas of the two sources (cone and port), the curves are plotted automatically on the computer screen.

In this case the results dramatically confirmed the manufacturer's ratings. The combined bass response was flat within a fraction of a decibel from 100 to 70 Hz, down 3 dB at 50 Hz, and fell off at 12 dB per octave below that frequency. It was down (from maximum) by 6 dB just below 40 Hz. Above 100

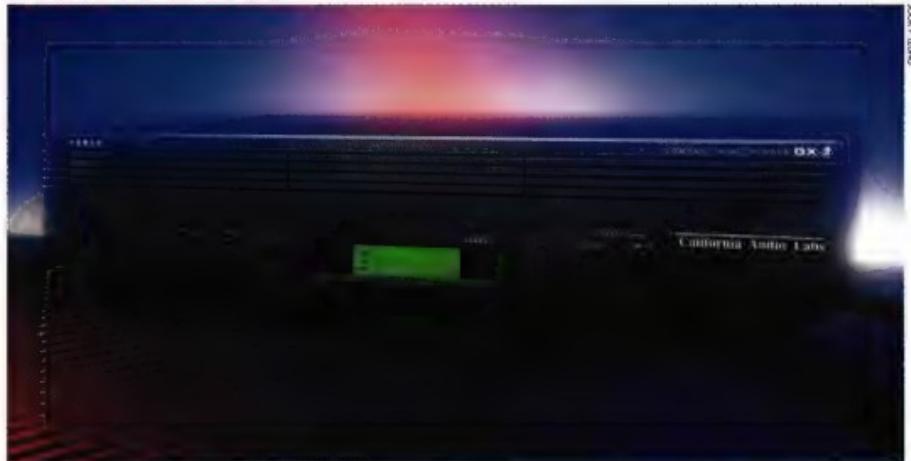
Hz, the response sloped off slightly, to -3 dB at about 300 Hz (our measurement limit).

That is indeed creditable performance from a speaker in this size and price class. Not surprisingly, the Century 400i sounded very good with a variety of program material. As our frequency-response measurements suggested, the overall sound was smooth and uncolored, and the stereo pair created a distinct and natural soundstage. In every respect, the PSB 400i sounded like a lot more speaker than its size and price would imply.

Whenever practical, we make informal A/B comparisons with other speakers on hand for review. As it happened, the only speaker system we had available for that purpose costs about ten times as much as the PSB system and weighs about five times as much.

No, David did not conquer Goliath in this rather unbalanced competition. The most striking difference was in the bottom octave of the bass range (one reason why subwoofers are so popular). But in the midrange frequencies and higher, the difference was surprisingly subtle; there were times when it was not at all obvious which speaker pair we were hearing. All in all, the PSB Century 400i provides first-rate sound at a bargain-basement price. An excellent value! □





California Audio Labs DX-2 CD Player

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

California Audio Labs manufactures a number of "high-end" CD players ranging in price from \$600 to \$2,000. The DX-2 is the latest addition to the line and one of the company's most affordable models. It is an updated version of the DX-1 player, which Ken Pohlmann reviewed in the September 1994 issue of *STEREO REVIEW*.

According to the manufacturer, the DX-2 has an improved version of the original drive mechanism that uses only 50 percent as many moving parts, resulting in improved tracking accuracy and reliability. The player's circuitry is mounted on a two-sided glass-epoxy circuit board instead of the single-sided phenolic board in the DX-1. Another improvement is an analog audio stage using discrete components, which is said to be superior to one built from integrated circuits. Finally, the power supply has been redesigned with a resin-potted transformer, separate from the analog audio section, that is said to produce less noise and to be more resistant to shipping damage than the previous design.

The DX-2 is a relatively compact,

all-black player whose front-panel controls consist of six slender operating buttons and a larger power button. The operating controls, which flank a small display window, are clearly identified with contrasting white markings. Although the buttons operate with virtually no motion, they have a positive and unambiguous feel that leaves no doubt about their actuation.

The controls to the left of the display open or close the disc drawer, start play, and pause play. To the right of the display are the stop button and two track buttons, previous and next. Each operation of one of the track buttons shifts the pickup one track forward or back on the CD in use.

The display window is relatively small ($2\frac{1}{4} \times 5\frac{1}{8}$ inches). Initially it

DIMENSIONS: 17 inches wide, $3\frac{1}{2}$ inches high, $12\frac{1}{2}$ inches deep

WEIGHT: 11 pounds

PRICE: \$649

MANUFACTURER: California Audio Labs, Dept. SR, 1751 Langley Ave., Irvine, CA 92614; telephone, 714-833-3040

shows the total number of tracks and the total playing time on the disc, and during play it shows the current track number and the elapsed playing time in minutes and seconds. A small music-calendar section of the display indicates the unplayed tracks on the disc, but only up to No. 15.

Despite its apparent (and real) simplicity, the DX-2 offers virtually all of the functions of any full-featured CD player. The supplied infrared remote control, in addition to duplicating the basic front-panel control functions, offers several other playback options.

The two search buttons on the remote activate forward or reverse functions at two speeds. The random button rearranges the playback sequence each time it is pressed. The DX-2's display indicates whether random play or any other special mode is selected.

The scan button plays the first 15 seconds of each track on the disc. Pressing the time-mode button toggles the display from remaining time in the current track to remaining total time on the disc to total elapsed time. A twelve-button keypad gives direct access to any track on a disc and can be used to program playback of up to twenty tracks in any order. In addition, you can even turn off the back-lighting of the player's display window in order to "remove any distractions from your listening pleasure," as the owner's manual puts it.

The DX-2's rear panel contains gold-plated BNC jacks for the analog

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output channels and for carrying the digital output to an external component such as a DAT recorder or an outboard digital-to-analog (D/A) converter. BNC locking connectors are physically and electrically superior to RCA-type connectors, which is why they are used in laboratory equipment. They are not compatible with RCA jacks, though, so if you plan on using RCA connectors you'll need adaptors (available from Radio Shack for about \$3 apiece). There is a three-prong receptacle for the detachable power cable.

The player's specifications state that it has a 1-bit Delta Sigma D/A converter with 32-times oversampling and 16-bit resolution. The analog audio stage uses discrete FET (field-effect-transistor) circuitry.

The CX-2 performed quite respectably in our lab tests. The minor deviation we found in our de-emphasized frequency-response test consisted of a slight hump in the curve centered at 4.5 kHz. Although the hump is located in a critical area, its size (only 0.37 dB) indicates that it will probably not be audible in program material. Harmonic distortion was much too low ever to be audible, and besides, it consisted principally of the third harmonic, which would be masked by the program content anyway. Power-supply hum was also extremely low. Linearity error at -90 dBFS (decibels referred to digital full

scale), while okay, was higher than we have seen from some less expensive players. Our excess-noise tests, which measure the amount of noise the player adds to a CD signal of either standard 16-bit or quasi-20-bit resolution, produced average results with the DX-2 (perfect performance in these tests would be 0 dB).

We are experimenting with a new, more critical test methodology for gauging disc-defect tracking (see "Testing . . . Testing" on page 63). With the new test procedure, the DX-2 tracked a 1,500-micrometer defect, which far exceeds the minimum performance standard for a CD player (200 micrometers). With our previous procedure, the DX-2 audibly mistracked at 2,000 micrometers, the next larger disc-damage increment on the Pierre Verany test disc. The player was also relatively insensitive to physical impact. Only a hard blow on the side of the cabinet, or a slap on the top cover, was able to induce a momentary interruption of the program.

The California Audio Labs DX-2 is a fine CD player. Although it costs more than most comparable major-brand models, it is a good value for the money, combining the most exacting construction and performance standards with a price that should not create a hardship for any reasonably serious audiophile. □

MEASUREMENTS

MAXIMUM OUTPUT 2.02 volts

FREQUENCY RESPONSE (20 Hz to 20 kHz)
de-emphasis off +0.08, -0.05 dB
de-emphasis on +0.37, -0.1 dB

CHANNEL SEPARATION

100 kHz	102 dB
1 kHz	95 dB
10 kHz	69 dB

NOISE LEVEL (A-wtd)

de-emphasis off	-92.5 dB
de-emphasis on	-92.3 dB

DISTORTION

at 0 dBFS*	0.0048%
-20 dBFS*	0.032%

LINEARITY (at -90 dBFS*) +1.0 dB

EXCESS NOISE (with/without signal)

16 bits (EN16)	2.75/3.4 dB
20 bits (EN20)	17/16.7 dB

PITCH ERROR +0.03 cent**

DEFECT TRACKING

(Pierre Verany test disc) 1,500 µm

IMPACT RESISTANCE side, A; top, B

* decibels referred to digital full-scale

** 1 cent = one-hundredth of a musical semitone

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- DC- Audio Connection: Custom Lister Up: Denver, Boulder, Colorado Sound: Soundworks: Denver & Suburbs, Boulder, Ft. Collins, Colorado Springs.
- CT- Al Franklin's Greenwich Audio Etc: Orange* Carlton's Audio Video: Danbury* Roberts Audio Video: New London* The Sound Room: Westport* Stereo Shop: Hartford.
- DC- Washington Suburbs: Myer-Emco.
- DE- Sound Studio: Newark, Wilmington.
- FL- Absolute Sound: Winter Park Audio Advisors: West Palm Beach* Audio Center: Deerfield Beach* Audio Video Store: Tallahassee* The Audio Connection: Boca Raton* The Big Picture: Clearwater* Hoyt Stereo: Jacksonville* Palm Audio: Decline Sound Components: Coral Gables* Sound Ideas: Gainesville* Sound Insight: Ft. Pierce* Stereotypes: Daytona Beach* Stewart AV: Stuart.
- GA- Laser Disc Enterprises: Atlanta* Merit TV: Columbus* Stereo Connections: Valdosta* Stereo Festival: Atlanta.
- HJ- Audio Center: Honolulu, Waipahu.
- IA- Audio King Cedar Rapids, Des Moines* Archer Audio Video: M. Dodge* Audio Video Logo: Des Moines* Audio Visuals: Sioux City* Hawkeye Audio: Iowa City, Cedar Falls.
- ID- Digital Electronics: Boise* Wise Buy: Idaho Falls.
- I- United Auto Centers: Spokane & Suburbs: Good Vibes: Champagne* Jon's Home Cr: Quincy* Sound Forum: Crystal Lake* Sundown AV: Springfield.
- IN- Classic Stereo: Ft. Wayne, Mishawaka* Good Vibes: Lafayette* Kings Great Buys: Evansville* Ovation Audio: Clarksville, Indianapolis.
- KS- Accent Sound: Overland Park* Advance Audio: Wichita* Audio Junction: Junction City, Manhattan.
- KY- Ovation Audio: Lexington, Louisville.
- LA- Alternar Audio: New Orleans, Metairie* Lake Charles Music: Lake Charles* Los Angeles: Los Angeles* Music's Sound Gallery: Shreveport.
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- MT- Aspen Sound: Missoula* Kalspeil* Avitel: Bozeman* Rocky Mt. Hi Fi: Great Falls.
- NC- Audio Video Systems: Charlotte* Audio Visuals: Wimington* Now Audio Video: Durham, Greensboro, Raleigh, Winston-Salem* Audio: Winston-Salem.
- ND- Custom Sound: Omaha, Lincoln.
- NE- Cookin': Nashua, Manchester, Newington, Salem, S. Nashua.
- NJ- Hat's Stereo: Trenor Monmouth Stereo: Shrewsbury* Sound Waves: Northfield* Woodbridge Stereo: West Caldwell, Woodbridge.
- NM- Ultimate Elect.: Albuquerque* Sound Ideas: Albuquerque.
- NV- Ultimate Elect.: Las Vegas* Upper Ear: Las Vegas.
- NY- Audio Breakthrough: Manhasset* Audio Den: Lake Grove* Audio Expressions: Newburgh* Clar Music: Albany* Syracuse* Stereo Exchange: Manhattan* Hart Elect.: Vesta* Innovative Audio: Brooklyn* Kef: Brooklyn* Scarsdale* Rows Camera: Rochester* Stereo Shop: Amherst.
- OH- Audio Craft: Akron, Cleveland, Mayfield Hts, Westgate* Audio Etc: Dayton* Classic Stereo: Lima* Ohio Valley Audio: Cincinnati* Paragon Sound: Toledo* Stereo Visions: Columbus* Threshold Audio: Health.
- OK- Audio Dimensions: Oklahoma City* Photo World: Stillwater, Shawnee* Ultimate Electronics: Tulsa.
- OR- Bradford's HiFi: Eugene* Chelesa AV: Portland, Beaverton* Kelly's Home Cr: Salem* Magnolia HiFi: (Portland) Beaverton, Clackamas* Stereo Plant: Bend.
- PA- Acoustic Research: Philadelphia* Gary's Etc.: State College* GM Stereo: Lancaster* Hart Elect.: Blakely Hi Fi House: Allentown, Bryn Mawr, Camp Hill, Hillside* Harrisburg* Listening Post: Pittsburgh* Palmer Audio: Allentown* Pro Audio: Bloomsburg* Stereo Shoppe: Selinsgrove* Williamsport* Stereoland: Natrona Heights* The StereoShoppe: Greensburg.
- RI- Stereo Discount Cr: Providence.
- SC- AV Design: Charleston* Custom Theater & Audio: Myrtle Beach* Upstairs Audio: Columbia.
- SD- Kipp's King: Sioux Falls* Sound Pro: Rapid City.
- SV- College Kitchens: Hi-Fi Buys: Nashville* Now Audio Video: Knoxville* Modern Music: Memphis* Sound Room: Johnson City
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- UT- Alpine Elec: Provo* Works: Salt Lake City* Crazy Boys: St. George* Sound Connection: Ogden* Sound Connection: Provo, Orem, Salt Lake City* VA- Myer-Emco: Falls Church, Tyson's Corner, Virginia* Sound Connection: Virginia Beach* Audiotronics: Roanoke* Home Media Store: Richmond* Magnolia HiFi: Seattle & Suburbs: Tacoma, Silverdale, Spokane* Aspen Sound: Spokane* Pacific Sigil & Sound: Wenatchee* Tin Ear: Kennewick.
- WV- Sound Post: Princeton.
- WI- Audio Emporium: Milwaukee* Milwaukee Absolute Sound & Vision: Sheboygan* Hi-Fi Heaven: Appleton, Green Bay* World: Wausau.
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TEST REPORTS



DANIEL A. HOUCK

The long screws provided for this purpose must go into a wall stud or another sturdy structure.

The unique character of the SCS2 becomes more evident when you unsnap the grille. At first glance, it appears to have only a single driver, nominally 6 inches in size, whose silvery aluminum cone, actually about 5 inches in diameter, is at the center of the front panel. Closer examination reveals that there is also a 1-inch metal-dome tweeter with a mesh protective grille concentric with the woofer, hence the name Coherent Source. The term "coherent" refers to a system whose drivers function to the greatest possible degree as a single sound source, thereby enhancing the spatial realism of its reproduction. In practice, a single driver, or a carefully executed coaxial combination of two drivers, is the most common example of a more or less coherent source. While coherence is a desirable quality from the standpoint of imaging accuracy, it is frequently subordinated to other design considerations.

The woofer has a cast-magnesium frame and, according to Thiel, its voice-coil diameter is 1½ inches, which is relatively large for a speaker cone with a diameter of 5 inches. Despite the small size of its woofer, the SCS2 is recommended for use with amplifiers rated to deliver from 30 to 150 watts.

The SCS2's drivers are magnetically shielded to permit operation close to a video monitor. Our gaussmeter was barely able to detect any magnetic flux (less than 0.3 gauss) at any point on the speaker's exterior. Obviously, this speaker is designed to be thoroughly compatible with both high-fidelity music and home-theater systems. It can be purchased individually as a center speaker or in a set of three for an identical front trio.

The SCS2 is a vented system, with two 1¼-inch ports located on the front panel, respectively about 2 inches above and below the woofer rim. As the speaker is delivered, the ports are blocked with 6-inch-long plastic foam cylinders that extend almost to the rear of the cabinet.

The speaker has two modes of operation. With the ports blocked — described as a "port-loaded" condition — the effective bass range extends only to about 80 Hz, but the speaker's output capability is maximized. This mode of operation is suggested for use in systems containing a subwoofer, which will compensate for any loss of

Thiel SCS2 Coherent Source Speaker

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

Thiel is a familiar name in audiophile circles, with a well-earned reputation for uncompromising quality in the design and construction of its loudspeakers as well as their sound quality. Until recently, most Thiel speakers have been floor-standing designs sharing such visible characteristics as sloping front panels and finely finished wood cabinets, sometimes combined with three-digit weights and typically carrying four-digit price tags.

The new SCS2 is Thiel's smallest, lightest, and most affordable speaker. It looks like almost any conventional bookshelf speaker, though like other Thiel speakers it is available in nearly two dozen matched wood veneers (some at extra cost). The speakers shown here are finished in Amberwood, which costs \$120 extra a pair.

Despite its conventional appearance, however, the SCS2 is far from being "just another bookshelf speaker." For one thing, it is remarkably heavy for its size — a solid 31 pounds (its price

is correspondingly weighty for a small speaker). And, as our tests demonstrated, its performance and sound quality are well beyond the ordinary.

The SCS2 was designed to provide exceptional installation versatility, too. Its rear panel contains a pair of recessed gold-plated binding posts that accommodate wires, lugs, or single or dual banana plugs. There are also fittings on the rear that can be used for wall mounting, with the speakers oriented either vertically or horizontally.

DIMENSIONS: 19 inches high, 7½ inches wide, 10½ inches deep

WEIGHT: 31 pounds

FINISH: medium or natural walnut, black ash, white or red oak, or natural cherry wood veneer; others available at extra cost

PRICE: \$1,990 a pair; also available separately, \$995 each

MANUFACTURER: Thiel, Dept. SR, 1026 Nandino Blvd., Lexington, KY 40511; telephone, 606-254-9427

lower-bass response. It is specifically recommended for home theaters.

Alternatively, the ports can be "un-loaded" by withdrawing the two foam blocks. In this mode, which is recommended for two-channel systems designed for full-range music reproduction, the system's rated bass response extends to 47 Hz (at the -3-dB point). The foam blocking cylinders can be replaced at any time to change to the system's other mode.

We first measured the SCS2's frequency response with the port-loading plugs installed. We placed the speakers on stands that put the tweeters 35 inches from the floor, with the speakers about 7 feet apart and 3 feet in front of the wall behind them. The response was measured separately for each speaker at a distance of 12 feet from the left speaker (on its axis), and the two curves were averaged to obtain a room-response curve.

The measured room response was flattest between 100 Hz and 2 kHz (± 4 dB). Normal room absorption resulted in a typical rolloff above 10 kHz, to about -12 dB at 15 kHz. With MLS quasi-anechoic measurements, the response variation was typically ± 5 dB

from 300 Hz to 20 kHz at distances from 1 to 3 meters from the speaker.

We measured the bass response separately, both with and without the foam port plugs inserted and using two microphones, one close to the lower port and the other at the cone. The two curves, corrected for the relative areas of the port and cone, were combined to obtain a total bass-response curve. Without the plugs (the mode we also used for our listening tests), the response was flat within ± 1 dB from 250 Hz down to 50 Hz and was down 3 dB at 42 Hz. It rolled off below 40 Hz at 12 dB per octave. With the plugs inserted, the response was ± 1.5 dB from 500 to 60 Hz, falling off at 6 dB per octave below 60 Hz.

The rated system impedance of the SCS2 is 4 ohms, with a minimum of 3 ohms. Our measurements confirmed those ratings, showing an unusually uniform reading of 4 to 5 ohms from 100 Hz to 20 kHz. The impedance rose to about 18 ohms at 60 Hz and dropped to 5 ohms at 40 Hz, with another increase to 22 ohms at 20 Hz, our lower measurement limit. System sensitivity, rated at 86 dB sound-pressure level (SPL), measured a some-

what higher 90 dB SPL (with 1 watt at 1 meter). Either figure indicates that the SCS2 is an easy speaker to drive and should present no problems with any amplifier.

Compared with most drivers with this kind of bass performance, the cone of the SCS2's woofer has a surprisingly small linear travel (only a quarter of an inch peak to peak). The magnetic structure has a relatively long gap through which the short voice coil moves, however, which is said to minimize bass distortion without compromising the midrange.

In our listening room, side by side with a much larger and even more expensive speaker system, the SCS2 held its own remarkably well except for the deep bass (below 40 Hz). If you have limited space, are looking for something better than merely "good" audio quality, and have a budget that is compatible with Thiel's price range, the SCS2 deserves an audition and serious consideration. Few, if any, single-driver or coaxial-driver speaker systems we have seen in recent years can approach (much less match) the combination of size and performance that it offers. □

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CIRCLE NO. 25 ON READER SERVICE CARD

USER'S REPORT



DANIEL KUMIN

Parasound Mini Power Amp, Phono Preamp, Room EQ

DANIEL KUMIN

Along with standard, "midi," and mini styles of audio gear, new equipment also comes in shelf systems, night-stand systems, and rack systems of just about every imaginable shape and size. So a new trio of components that could practically fit in your coat pocket is not exactly breaking news. What is news, however, is that it comes not from one of the Pacific-rim big boys — traditional sources of odd-sized audio — but from Parasound, a San Francisco-based purveyor of relatively high-end audio and A/V gear.

Parasound's goal was to package clever audio utility — the kind that might not be appropriate in its full-size designs — into chassis that are small enough for multiple applications, including remote-room installations of multiroom setups and desktop audio. There are currently four "problem-solver" components in the full series, three of which are on trial here. (The fourth is a gizmo for turning amplifiers on and off remotely.)

I'm going to address these boxes individually, as any of them might be attractive singly to fill a particular need, but the petite Parasounds can be mixed, matched, and stacked at will. All are built on a common chassis, some 9½ inches wide, 1¾ inches high, and 7 inches deep, on a plain but solid sheet-metal "pan" with a thick, extruded-aluminum front panel. The quality of the basic black finish, with Parasound's usual gold-toned panel graphics, is quite good. On the rear panel, where legibility counts, the labeling print is bright white — smart.

Zamp Zone Amplifier

Though I've been around audio for almost thirty years, the Zamp (\$249) is the smallest home power amplifier I can recall seeing. It was created primarily to provide the power for remote rooms in multiroom or whole-house systems where line-level signals — selected by a wall-pad or remote control — are sent from a "home-room" component array. Of course, the micro

two-channel power amp could well prove useful in numerous other applications, including desktop multimedia systems. Though pint-sized, it is very much a component-grade power amp, with a small toroidal power supply, an all-discrete output stage, and full complementary/symmetry circuitry.

Refreshingly, Parasound appears to have designed the Zamp for real-world audio use rather than specsmanship. It is rated to deliver 30 watts per channel into 8 ohms (45 watts into 4 ohms) with less than 0.03 percent total harmonic distortion (THD). That is modest by today's power standards, but still impressive for an amp about the size of a box of Grapenuts. Even more impressive is the manufacturer's rating of 20 amperes peak current per channel, which suggests that the little Zamp might be capable of dumping substantially more than 100 watts, short-term, into momentarily low-impedance loads.

The Zamp provides RCA input jacks, standard five-way binding-post outputs, and a bridging-mode mini-toggle switch on its rear surface. There are also terminals to accept a 5- to 12-volt DC turn-on trigger of the kind furnished by many multiroom controllers, miniature finger-knob input-level trims, and a removable IEC-standard power cord — a lot of stuff for such a tiny, inexpensive amp. The main power switch is on the front, but the Zamp can be set to turn on and off automatically, responding either to the DC trigger or to the presence or absence of an audio input signal.

I ran the Zamp directly from a high-quality CD player and drove a pair of NHT Super One compact two-way speakers, a typically medium-sensitivity, relatively benign 8-ohm-load transducer. Sound was generally exemplary: quiet, clean, and surprisingly dynamic and punchy for a 30-watt amplifier even aside from its small size. The Zamp easily drove the NHT's to realistic concert-like levels in a near-field layout (speakers about 4 feet from my ears), and it delivered satisfyingly musical loudness at more conventional listening distances.

With punchy rock recordings the Zamp did not have enough dynamic ability to keep the kick-drum clean at a room-filling level, and it would stumble and flop a bit well before the onset of steady-state audible clipping, unlike Parasound's full-size amps, which in my experience have ample dynamic reserves. Still, the level at



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which the Zamp began to exhibit problems was quite loud — well beyond most reasonable expectations for a 30-watt-per-channel amp.

I'd have few qualms about using the Zamp for quite serious small-scale listening, or deploying it in any number of creative ways in an audio or A/V system, as long as ultimate loudness or "extra" reserves for occasional raves-ups are not key considerations. Parasound says that the Zamp will cool satisfactorily when placed on edge vertically, too, which makes it perfect for desktop/multimedia installations.

A quick trip to the test bench confirmed Parasound's Zamp specs. I found that clipping began at about 33 watts, and distortion at all levels below 30 watts was very low indeed, less than 0.01 percent over the audio band. The Zamp was also very quiet, with an A-weighted signal-to-noise ratio of about 102 dB (re: 30 watts).

P/PH-100 Phone Preamplifier

It's far from uncommon today to find a receiver, integrated amp, or preamp that omits phonograph inputs altogether. This makes good sense for most folks: The high-gain/low-noise circuits demanded for top-grade phono preamplification and equalization are expensive and fussy to build, so if you're not going to use them, why pay for them? While numerous "high-end" outboard phono preamps are available, costing from several hundred to over a thousand dollars, more affordable solutions are comparatively rare.

Parasound's is ultra-simple. The P/PH-100, which lists for \$120, is a small black box with RCA-jack inputs and outputs, a ground terminal, and a power cord. There's not even a power switch; power consumption is negligible. The maker says that the P/PH-100 employs high-quality op-amps from Analog Devices and high-grade capacitors to insure signal quality, and that it supplies plenty of gain for moving-magnet (MM) and high-output moving-coil (MC) phono cartridges.

I tried the little P/PH-100 with an Ortofon VMS-20E cartridge, a moderate-output MM design, sending its line outputs to the aux input on a high-quality preamp/headphone amplifier. I did most of my listening with top-quality headphones. The P/PH-100's phono stage did indeed have plenty of gain to drive the preamp's line stage easily to a fully adequate output, and the pocket-size component proved to

be very quiet and hum-free. Compared with the phono-input stage in a high-endish midsize "shelf system," the Parasound was audibly better, with improved transient definition, superior top-end air and detail, and discernibly lower hum. There was very little to differentiate the P/PH-100 from my regular preamplifier's phone section (an excellent example, in my opinion). The big preamp's phono section sounded only marginally better — pretty impressive performance for a \$120 box. If you need a phono add-on for anything less than critical LP listening, the Parasound P/PH-100 should handily satisfy your ears.

R/EQ-150 Room Equalizer

Of the three miniature Parasound components, the R/EQ-150 (\$145) is perhaps the least conventional. It is a five-band equalizer with a single stereo input and output and a master level (volume) control. The equalization bands are controlled by knobs, not sliders, so this is not a "graphic" equalizer. Parasound conceived the R/EQ-150 mostly to provide correction for remote-room setups where the acoustical vagaries of in-wall speakers or other "challenged" transducers conspire with less than ideal speaker placement and room furnishings to compromise sonic accuracy.

Consequently, the R/EQ-150's operating frequencies were selected more for their impact on the interaction be-

tion, there was minimal dip across the zero line, meaning that a cut band did not induce excessive overshoot-boost at the ends of its half-octave of influence, or vice versa. Distortion and noise were both also very low.

I listened to the R/EQ-150 through the aforementioned NHT Super One setup and found it a clean, quiet, and unusually useful response-shaping component. The controls work relatively slowly, with usefully subtle changes at the first half of each knob's rotation from center and more severe boost/cut action with twists beyond the 3 and 9 o'clock positions. The master level knob works the same way. I did not hear any notable additions in noise, distortion, or imaging artifacts, and I judged the bands to be well chosen. I did find the R/EQ-150's small, smooth knobs quite hard to grasp and turn, but that's a minor complaint for a component that is designed mostly for "set-and-forget" operation.

Placing the NHT's against the wall near corners predictably yielded heavy, bloated bass. I was able to tame this effect — to a degree — by rolling down the R/EQ-150's 80- and 120-Hz bands by moderately large amounts. Equalization is no panacea, and as a rule it cannot overcome speaker/room problems entirely. But for multiroom setups where listening of a more than casual nature is desired and unavoidable speaker/room compromises need to be overcome, the R/EQ-150 could

Of these three miniature Parasound components,

the R/EQ-150 equalizer — conceived

to provide acoustic correction for remote-room

setups — is perhaps the most useful.

tween loudspeakers and room acoustics than for program equalization. The EQ bands are centered at 40, 80, and 120 Hz and 2.5 and 6 kHz, which in musical terms might be thought of as sub-bass, thump, boom, vocal-presence, and treble-air. Parasound specifies them as half-octave bands with ±8-dB adjustment ranges. I couldn't resist a quick trip to the test bench, which confirmed that the controls were just about spot-on. My tests further revealed very smooth EQ action with minimal interaction — that is, a cut band stays cut even when you boost an adjacent frequency. In addition,

prove to be the most useful as well as the most unusual component in this Parasound trio.

These three miniature components are unique and creative audio tools that I suspect will find a wide variety of uses. Each performed very well, and their individual values should be self-evident. I look forward to seeing what other audio or A/V functions Parasound elects to shoehorn into its new pocket-sized format.

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Cambridge SoundWorks MicroWorks Computer Speaker System

KEN C. POHLMANN

Even though buzzwords such as "information superhighway" and "convergence" are showing more wear and tear than the Lincoln bedroom, there is no denying that computer technology is rapidly and forever changing the face of our society. The PC is a common sight in both homes and offices — in fact, computers are outselling TV's these days. Increasingly, PC's will handle all of the important signals in our lives, including audio signals. Almost all new PC's today are multimedia machines offering rich audio capabilities.

They can play music CD's as well as game and other CD-ROM's, synthesize music from MIDI files, and play downloaded or streaming audio from an Internet connection. Moreover, DVD-ROM drives allow playback of feature films, and in the near future digital TV broadcasts will be viewed on PC's. In short, personal computers will increasingly function as complete entertainment appliances, converging with televisions and stereo systems.

Computers are highly prone to the "garbage in, garbage out" syndrome; their output is only as good as their in-

put. They are also prone to the "quality in, garbage out" syndrome, in which even a good input, such as a well-recorded music CD, can sound bad. To get a high-quality output, you need a high-quality sound card, with low-distortion D/A (digital-to-analog) converters, and high-quality speakers. Too often, even if the sound card is respectable, the speakers bundled with the PC are not. As a result, most PC users tend to reserve their computers for background, noncritical listening. That is changing with the advent of better-sounding speaker systems specifically designed for computer audio playback.

Case in point is the MicroWorks speaker system manufactured by Cambridge SoundWorks (CSW). This \$350 system comprises three units: two small satellite speaker cubes and an amplifier/bass module. The two satellite cubes, measuring only $4 \times 4 \times 3\frac{1}{2}$ inches, are designed to reproduce midrange and high frequencies from a single 3-inch driver. The cabinets are plastic, with perforated metal grilles. Because these satellites are magnetically shielded, they can be placed alongside a computer or television monitor and the speaker magnets will not distort the picture. A metal stand, provided for each cube, connects to the rear of the cabinet with a single thumbscrew and angles the speaker up. Alternatively, brackets built into the cabinets can be used to hang the speakers on a wall or another surface. The input to each cabinet is via two push-release terminals. For ease of installation, CSW provides two 12-foot lengths of stranded speaker wire.

The bass module contains the "subwoofer" and a three-channel power amplifier rated to deliver 16 watts rms into 4 ohms to each satellite and 42 watts rms into 4 ohms to the subwoofer. The module measures 9 inches wide, $16\frac{1}{2}$ inches high, and 8 inches deep and acts as a ported enclosure for the $6\frac{1}{2}$ -inch woofer. It accepts an AC cord and has a power switch and a bass-level control. There are also two audio input minijacks and two outputs to the satellites on the module's back panel.

The bass/amp cabinet is not magnetically shielded and thus should not be placed near a monitor. Since its mono bass output is largely nondirectional, it can be placed on the floor, out of the way. A 12-foot cable is provided to connect the audio source to the amplifier module; it has an in-line

thumbwheel potentiometer that can be used to adjust overall volume. Of course, in many cases, this volume control will be extraneous because volume will be adjusted from the source through either software or hardware. For example, a sound card's volume can be controlled via an on-screen fader, and a portable CD player would have its own volume control. While my review unit had an off-white finish, a black finish is also available.

It was an easy matter to set up the MicroWorks system and connect it to my computer. I placed the amplifier/subwoofer module on the floor next to my Pentium-based tower, which happened to put the module in a corner of my listening room. As with any bass unit, a corner location augmented the bass output. Conversely, placing the module on a shelf or table instead of the floor would result in diminished bass response. Anyway, because the bass module has its own level control, I figured that if the bass was boomy, I could dial it down a little.

I connected the amplifier to my computer's sound card using the supplied cable. Finally, I placed the satellite cubes on either side of my computer monitor and connected them to the amplifier with the supplied speaker wires (making sure that the speakers were in phase). Total time from cardboard box to playback was less than 10 minutes. I powered up and took a moment to adjust the output gain from my sound card so that it delivered a satisfactory level to the MicroWorks system but did not overdrive it.

I spent a couple of hours auditioning the system's sound quality. Frequency response was quite respectable, subjectively extending from 20 kHz down to 100 Hz or so. I was par-

ticularly impressed by the bass sound quality. Whereas many small woofers can only produce an annoying one-note honking sound, the MicroWorks provided a very musical bass line. Moreover, the system played cleanly up to 90 dB sound-pressure level or so without thumps or buzzes and without the bass distortion that plagues most small speakers. I also felt that imaging was good, with natural ambience, even though the speakers were relatively close together and near to me.

The system did exhibit some unevenness in the midrange, partly because of a comb-filter response that was introduced by the satellite placement. I heard the direct sound as well as slightly delayed reflections from the hard desktop that created bumps and notches in the frequency response. (Some enterprising desktop-speaker company should address this inevitable problem, which could be ameliorated by digital processing.) To work around this acoustical problem, I tried different placements and wound up fastening the satellites to the top sides of my monitor with Velcro. That helped flatten the midrange response, but I was still somewhat concerned by the quality of the mid/highs, which sounded hard to my ears. Unfortunately, the MicroWorks system does not have a treble control, nor did the software I was using, so I could not adjust the mid/high frequency response.

Speaking of controls, the bass control on the amplifier module allowed me to dial in exactly the right amount of bass output to correct for the speaker placement. Unless you like to change bass levels often, the kind of remote placement I used will work fine. The in-line volume potentiometer also worked fine, but you should con-

sider whether you want to deal with another gizmo on your desk or if a software level control will meet your needs. Personally, I don't mind using a mouse-controlled software fader for this purpose. An aside to the Cambridge SoundWorks designers: I'm sure you're proud of your company, but please consider using a less intrusive logo on the satellites — a miniature speaker shouldn't have a nameplate as imposing as the one on an automobile!

The MicroWorks system has many applications beyond computer playback. To test them, I connected a portable CD player to the system's second audio input jack. That let me listen to CD's from either my CD-ROM drive or the portable player. Because the speaker system's two audio inputs are mixed internally, it would be possible, if your computer has a sound card but not a CD-ROM drive, to listen to an external CD player and still hear all the audible prompts from your computer.

You could also use the MicroWorks as a modest stereo-TV speaker system. Simply connect the TV's audio output to the base module and position the satellites on either side of the screen and the bass unit in a corner, then use the TV's remote to control volume. Although a far cry from high-end surround sound, it will beat the pants off the 2-inch speakers that you get inside most TV sets.

Without question, the CSW MicroWorks is superior to the powered speakers that are typically bundled with multimedia computers, even those made by some big-name companies. On the other hand, as one would expect, the system falls short of the true high-fidelity standard set by some larger, costlier home speakers. Instead, the MicroWorks provides solid sound quality that will make CD's, CD-ROM's, and games come alive in the computer environment. In fact, the MicroWorks is a good example of a hybrid product that stands neatly astride the converging worlds of audio, video, and computers. There is no way to predict how soon audio, video, and computer technology will be truly integrated, but speaker systems such as the Cambridge SoundWorks MicroWorks are ready to deliver solid multi-media playback right now.

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ABSOLUTE POWER

What has five channels, is crammed into a compact space, and is growing by leaps and bounds? No, it's not the Mississippi Delta, or even the metro New York television market. We're talking about multi-channel power amplifiers designed specifically for home theater.

You don't have to look far for the rationale behind a five-channel amplifier. Today's typical home theater has a powered subwoofer and five speakers: left, center, and right across the front and a pair of rearward surrounds whose primary job is to convey ambience and special effects. Fortunately, most A/V buffs these days understand that the center speaker is at least as important as the speakers flanking it and therefore deserves an equal dose of power. Unfortunately, too many still regard the "rear" surround channels as secondary in nature and therefore less demanding than the front channels in terms of power requirements. While it is true that you don't absolutely need power parity between the front and surround channels for Dolby Pro Logic playback, because the DPL surround channel has limited bandwidth, equal surround pow-

er is recommended for Dolby Digital playback since its two surround channels can carry full-range stereo information.

In this DVD-driven era where 5.1-channel surround sound is the rage, the trend in A/V receivers and stand-alone five-channel power amplifiers is to provide equal power to all five outputs. Recognizing that many people still prefer the flexibility afforded by separates, we rounded up every five-channel power amplifier we could get our hands on in the popular \$1,000-or-less price category. While there are a few dozen five-or-more-channel power amps to choose from in the \$1,000 to \$4,000 range, we decided to limit

this evaluation to the most affordable five-channel amps, reasoning that any one of them could be combined with a high-value surround processor to create a two-some that's no more expensive than some of the higher-end A/V receivers out there.

Our search turned up four candidates: B&K's AV2500 (\$798), the Carver AV-505 (\$859), Harman Kardon's PA 5800 (\$999), and the Rotel RB-985 (\$1,000). But the field is growing, so there may well be another one or two (or three or four) five-channel models in this price range by the time you read this. All of the amps I tested have relatively compact, simplified layouts largely devoid of controls, indicators, and user features.

For the most part these amps are engineered for you to plug 'em in, hook 'em up, turn 'em on, crank 'em up — and then happily forget about their existence for years at a time, which is precisely what a reliable power amp is all about. Yet there are still a number of differences between them in terms of both facilities and performance.

My evaluation consisted of lab tests and listening. For the lab portion, I put

FOUR \$1,000-OR-LESS 5-CHANNEL AMPLIFIERS FACE THE MUSIC

COMPARISON TESTS | BY DANIEL KUMIN



each amp through the usual battery of tests, measuring power output at clipping, distortion, noise, and other characteristics. I measured power output with one, three, and five channels driven. For the five-channels-driven measurement, I used out-of-phase test signals on the alternate channels, on the theory that this more closely approximates real-world conditions, at least slightly, than would driving all five channels in phase with pure test tones, which seems artificial.

For the listening part of the evalua-

I opted to drive the 803/2's full-range rather than use a subwoofer. While it's likely that one of these amplifiers would be used in a system with a powered sub, which would substantially reduce the amp's workload, I wanted to see (and hear) how each amp performed at — and beyond — its limits. Just for the record, B&W rates the sensitivity of the Model 803 Series 2 at 90 dB sound-pressure level at 1 meter with a 1-watt input.

For consistency, I confined my source material to three discs: an

even all five outputs) to yield "higher-current" output capable of driving high-impedance loads, such as an array of speakers wired in series. The mono bus option can combine the inputs for Channels 1 and 2 for any or all channels, and the left/right and mono bus are both looped through to buffered line outputs that can be used to daisy-chain multiple amps. Sensibly enough, the AV2500 arrives set for a typical home-theater setup with five inputs to five channels.

Inside, the AV2500 is very tidily assembled in a surprisingly compact layout (the chassis could actually be made even smaller), with a single toroidal transformer and filter-circuit power supply common to all five channels. The outputs employ a single, dual-transistor output device for each channel, mounted on a common, central heat sink. The AV2500's one-piece, folded sheet-metal chassis is noticeably thicker than those of the other amps in this group; though very plain, its fit and finish are excellent.

Despite its diminutive layout, the B&K AV2500 is equipped like many higher-power (and more expensive) multichannel amps. While the front panel has only a power switch and corresponding indicator lamp in one corner, the rear panel sports eight RCA input jacks, a pair of binding-post output connectors, and a good-sized input-level (trim) knob for each channel. Alas, the speaker connectors are of a nonstandard spacing that will not accept industry-standard dual-banana plugs. Severely annoying! The RCA jacks, arrayed in two rows, provide inputs to the five channels as well as L/R (stereo) and L+R (mono) pass-through bus outputs. Unless you've studied the AV2500's manual a bit, the layout of these jacks may well be confusing; even though one jack in each pair is white and the other red, the color coding is irrelevant in this numbered layout. Two more RCA jacks provide input and pass-through outputs for a DC trigger signal (5 to 24 volts) that can mute or unmute the amplifier when it's connected to one of B&K's preamps or preamp/tuners, which are equipped with DC triggers.

B&K AV2500

RATED POWER PER CHANNEL (five channels driven): 60 watts "music power" into 8 ohms; 4-ohm rating not given

SPECIAL FEATURES: Extensive channel-combining/signal-routing options, including bridging and unique current-adding modes; input-level controls; mute-trigger input/output

DIMENSIONS: 17 x 3½ x 11 inches

WEIGHT: 20 pounds

PRICE: \$798

MANUFACTURER: B&K Components, Dept. SR, 2100 Old Union Rd., Buffalo, NY 14227; telephone, 1-800-543-5252

B&K AV2500

B&K's most affordable home-theater amplifier is notable first for its size: The AV2500 is about half as big as the other amps evaluated here (it uses the same compact chassis as B&K's preamp/controllers). On the inside, the AV2500 is even more unconventional; it can be configured in a number of unusual ways by popping the top cover and rearranging two tiny jumpers for each channel.

For instance, you can bridge Channels 4 and 5 into a single, higher-power (unspecified) output that complements three normal channels. You can bus a stereo input to two stereo-pair outputs, with mono going to the fifth channel, as for a multiroom setup. Or you can cascade the channel pairs (or

tion, each amp was wired into a high-performance home theater comprising a pair of B&W Model 803 Series 2 front left and right speakers, a B&W HTM center speaker, two Model 7.2 dipole surround speakers from Harman Kardon's Citation line, and the state-of-the-art Lexicon DC-1 A/V preamp/controller (reviewed in the April issue). The sole source component was a Pioneer CLD-D702 CD/laserdisc combi-player whose digital output was fed to the DC-1. In order to exercise each amp as fully as possible,



B&K AV2500

RATED POWER PER CHANNEL (five channels driven): 60 watts "music power" into 8 ohms; 4-ohm rating not given

SPECIAL FEATURES: Extensive channel-combining/signal-routing options, including bridging and unique current-adding modes; input-level controls; mute-trigger input/output

DIMENSIONS: 17 x 3½ x 11 inches

WEIGHT: 20 pounds

PRICE: \$798

MANUFACTURER: B&K Components, Dept. SR, 2100 Old Union Rd., Buffalo, NY 14227; telephone, 1-800-543-5252



CARVER AV-505

RATED POWER PER CHANNEL (five channels driven): 80 watts into 8 ohms from 20 Hz to 20 kHz with 0.08% THD; 4-ohm rating not given

SPECIAL FEATURES: Input-level controls

DIMENSIONS: 19 x 5 1/4 x 18 1/4 inches (including rack handles)

WEIGHT: 42 pounds

PRICE: \$859

MANUFACTURER: Carver, Dept. SR, P.O. Box 1237, Lynnwood, WA 98046-1237; telephone, 206-775-1202

should note that the AV2500 was not thrilled about driving 4 ohms; B&K's literature recommends using efficient speakers, preferably with a nominal 8-ohm rating.) Noise was higher than the competition at -83.3 dB, but for some reason only on Channel 1; the other four channels were about 5 dB quieter.

Even though its rear panel is relatively busy, wiring up the AV2500 required only a few minutes, and once it was fired up in my system I was rather impressed by its capabilities. The B&K was clean, dynamic, and quiet, and it sounded only barely less powerful than its higher-powered competitors. At any level short of overt clipping I heard no distinct sign of its real-world power limits. While the AV2500 did clip audibly at a lower volume than the other amplifiers, sound quality remained very good quite close to this limit, without growing substantially harder or more "congested" until shortly before the onset of plainly audible distortion. Overall, the system as powered by the B&K was well balanced and sounded tight, transparent, and surprisingly authoritative in the bottom octaves.

Carver AV-505

Carver's multichannel design incorporates something the company calls

Power Steering circuitry. (Funny . . . I poured about a gallon of hydraulic fluid into the top, but the amp never did fill all the way up.) This feature is said to allow the AV-505 to "steer over 130 watts to any channel to which program material is steering the strongest signal." That's obviously a good idea in a 5.1-channel home theater, where the five main channels virtually never demand full power simultaneously but their individual dynamic demands will frequently be high. I'd be remiss, however, if I failed to point out that more conventional multichannel amplifier designs (except perhaps those few that use extreme power-supply regulation) will perform similar adjustments, at least to some degree, as a matter of course.

The AV-505's front panel is featureless except for a big power switch and a tiny pilot LED, and its back panel is only slightly more elaborate. There are equally spaced single RCA input jacks for each channel, with an adjacent fingertip input-level adjustor and a pair of large speaker-output binding posts. These connectors are moderately heavy-duty and accept wire, lugs, or *single* banana plugs, but their nonstandard spacing will not take dual banana plugs. Arrrggggh!!! When will these guys learn?

With its handsome front panel and simple finish, the AV-505 is a good-looking amplifier. Its "rack" handles

ease moving it around but are mostly cosmetic and can be removed to fit the amp into a standard 17-inch-wide cabinet. Doing so requires taking off the top cover — fastened by more screws than the space shuttle's heat shield. The amp's sheet-metal chassis is only average in thickness and finish, but it forms a solid structure. Inside is a row of five individual, modular amplifier sections, each one mounted to its own heat sink and containing everything except the power supply's transformer and line-filter components. This design makes it easy to service the amp (and provides significant manufacturing economies). Assembly and parts quality looked quite good. Aside from the AC and transformer leads the AV-505 has no hand-wiring at all.

In the lab, the AV-505 exceeded all of its specs by comfortable margins except for noise; my result was 1 dB shy of Carver's — let's sue 'em. (In truth, different test environments' stray noise fields would easily account for twice this difference.) The AV-505 manifested Carver's Power Steering concept by delivering 50 percent more power to a single channel than in five-

HARMAN KARDON PA 5800

RATED POWER PER CHANNEL (five channels driven): 80 watts into 8 ohms or 110 watts into 4 ohms, both from 20 Hz to 20 kHz with 0.03% THD

SPECIAL FEATURES: Automatic turn-on/off trigger input

DIMENSIONS: 17 1/2 x 6 1/4 x 15 1/2 inches

WEIGHT: 30 pounds

PRICE: \$999

MANUFACTURER: Harman Kardon, Dept. SR, 80 Crossways Park W., Woodbury, NY 11797; telephone, 1-800-645-7484



channels-driven mode (153 vs. 103 watts). But let's note that proportionately the Rotel amplifier did nearly as well in this admittedly simple-minded comparison. Despite the lack of 4-ohm specs, the AV-505 happily drove three 4-ohm loads to 160 watts, full band with 0.08 percent THD plus noise. And although it heated up nicely with 4-ohm loads, the amp never complained, nor did its protection circuitry kick in.

Powered by Carver's AV-505, the reference system sounded clean and dynamic, with notable punch. The AV-505 played as loud as any amp in this group, and perhaps even a shade louder, before exhibiting signs of strain. The system remained listenable — an admittedly subjective judgment — a good distance past the amp's pristine-output ceiling. The top end was defined and detailed, and the bottom octave was resolute and crisp.

But my all-around favorite AV-505 feature was this: When I powered it up, all five output relays clicked to the rhythm of "shave-and-a-haircut"; they did it every single time. More important, I was impressed by Carver's excellent owner's manual, which is comprehensive and clearly written.

Harman Kardon PA 5800

The Harman Kardon PA 5800 is made in the U.S. as are all of the amps in this test group except the Rotel, which the British firm produces in Taiwan. For my money the PA 5800 is the handsomest of the quartet, though its sculpted fascia is elegantly blank except for the power button, whose backlighting changes from red (standby) to green when the amp is switched on.

Around back, Harman Kardon has endowed the PA 5800 with the expected RCA input for each channel, each one placed next to a standard pair of five-way binding-post connectors ready to take bare wires, lugs, pins, or single or dual banana plugs. The connectors are of good quality, though the speaker outputs are not the heaviest available (nor would I expect them to be on an amplifier in this price range). Since there are no bridging options or input-level controls, the PA 5800's only other rear-panel feature is a minijack labeled Remote Amp Trigger In, which is included mostly to enable automatic turn-on/off with compatible Harman Kardon preamps and preamp/tuners equipped with a corresponding trigger output. But as the owner's manual du-

tifully points out, you could achieve the same effect by purchasing a 6- to 12-volt "wall wart" power adaptor (about \$7 at a Radio Shack near you), plugging it into your preamp/processor's switched AC convenience outlet, and routing it to the amplifier's trigger input.

Under the hood the PA 5800 is somewhat unusually arranged. A single horizontal heat sink stretches across the middle, with all five channels' output devices on its underside. A long, narrow circuit board across the rear edge carries the balance of the circuitry for all channels, including individual power-supply filtering/rectification for each channel, close by each channel's driver circuits. The single toroidal power transformer, which is mounted vertically on the inside of the front panel, sends individual taps to each channel. The PA 5800's chassis is a sheet-metal origami construction that yields a stiff, solid structure despite its average thickness. Assembly, fit, and finish all looked good, as did critical-circuit component quality.

On the test bench, the Harman Kardon PA 5800 produced a comfortable surplus over its per-channel ratings, clipping only when producing 90 watts into 8 ohms in five-channel mode and a substantial 155 watts with three channels driving 4 ohms. Distortion was low under all conditions, and the noise measurement was particularly impressive: 95 dB below 1 watt or less into 8 ohms, which would make it

Music Surround mode, the sound was notably smooth and defined on top. I also noted a similar note regarding the screechier passages of *The Fugitive's* Big Crash Scene, observing satisfyingly detailed, natural high-volume reproduction without harshness. The amp played as loud as either the Carver or the Rotel before caving in to audible clipping, and in music listening I felt that it "hit the wall" a bit more gracefully than some of the others, with slightly less harsh/squished sound as it approached clipping.

Rotel RB-985

Rotel's RB-985 is the only THX-certified amp in the group, and at \$1,000 it is also the most expensive. It's a simply designed component intended to drive five speakers to high levels. Peri-

ROTEL RB-985

RATED POWER PER CHANNEL:

100 watts into 8 ohms, or 200 watts into 4 ohms, both from 20 Hz to 20 kHz with 0.03% THD

SPECIAL FEATURES: DB-25 multichannel input connector

DIMENSIONS: 17½ x 5½ x 15¾ inches

WEIGHT: 34 pounds

PRICE: \$1,000

MANUFACTURER: Rotel, Dept. SR, 54 Concord St., North Reading, MA 01864-2699; telephone, 508-664-3406



about 114 dB below full output. The amp sucked a lot of current from the wall at full cry, causing a drop of no less than 9 volts (from a 118-volt draw at idle) when it was fully clipping into multiple 4-ohm loads on the test bench.

Listening to my home-theater system as powered by the PA 5800 revealed no audible problems. In fact, with country rock in the Lexicon's

od. Consequently, it offers no input-level controls, bridging facilities, or loop-through jacks, just five RCA inputs and five pairs of five-way binding-post outputs. Front-panel features consist of a single power button and five LED's that light up during the amp's turn-on routine, winking as the channel relays open up. If any of the Rotel's channels overheat, it disconnects its speaker load and lights the

MEASUREMENTS (START LABS)

	B&K AV2500 (\$798)	CARVER AV-505 (\$859)	HARMAN KARDON PA 5800 (\$999)	ROTEL RB-985 (\$1,000)
OUTPUT AT CLIPPING (watts, 1 kHz) ^a				
8 ohms (one, three, five channels driven)	66, 51, 42	153, 123, 103	105, 98, 90	178, 145, 123
4 ohms (three channels driven)	65	180	155	222
DISTORTION (THD, 1 kHz, rated power)				
8 ohms (one, three, five channels driven)	0.03%, 10%, >10%	0.03%, 0.03%, 0.03%	0.01%, 0.01%, 0.015%	0.005%, 0.02%, 0.03%
4 ohms (three channels driven)	0.5%	0.08%	0.08%	0.04%
SENSITIVITY (for 1 watt, 8 ohms)				
	75 mV	100 mV	110 mV	100 mV
NOISE (A-wtd, re 1 watt)				
	-83.3 dB	-89 dB	-95 dB	-91 dB
FREQUENCY RESPONSE (20 Hz to 20 kHz)				
	+0.1, -0 dB	+0, -0.1 dB	+0, -0.1 dB	+0, -0.2 dB
AC-LINE DROP AT MAXIMUM POWER ^{**}				
	2.5 volts	5 volts	5 volts	9 volts

^a Measured at 1 kHz, at 1% THD plus noise (see text).

^{**} AC line voltage sag between idling (no-input) and maximum output (all channels clipping). This will vary according to the house wiring.

appropriate telltale. Simple enough — simple is good.

The RB-985 is constructed on a rather plain black chassis of about average heft using heavily slotted sheet-metal top, side, and bottom panels that permit fully enclosed heat sinks. Inside, things are symmetrically laid out, with two pairs of stereo modules at the corners and a single mono amplifier module in the center, which Rotel says minimizes circuit-path length and complexity. Assembly and parts quality is quite good, with heavy, stand-off copper bus bars used for high-power routings. Each channel's power supply is individually filtered. Interestingly, the center-channel module's supply gets a bit more storage capacitance than the other four: 20,000 µF vs. 15,000 µF. Though not fancy by any standard, the Rotel amp displays a rather nice paint job and very good all-around finish.

There is one unusual item on the rear panel of the RB-985 amplifier: a multipin computer-style jack labeled DB-25 Input. This accepts a single-cable, multichannel output from Rotel's latest surround-preamp/processor components (and those of a few other brands), allowing fast, idiot-proof interconnection.

I do have one bone to pick. The RB-985's layout puts the left and right inputs/outputs for both the front and surround channels at the amp's far corners, with the center in the middle (duh . . .). Though I'm not crazy about this arrangement, I can live with it — but the amp uses standard, colored-

pair RCA jacks on either side, so its color coding is wrong, with front-left red and front-right white. This contravenes every law of God and nature (red = right) and tripped me up repeatedly — and I've been doing this for a lot of years. (Oh well, what can you expect from a company that's based where they drive on the wrong side of the road and eat pickled fish for breakfast?)

Although Rotel's power ratings do not specify the number of channels driven, my lab tests confirmed their relevance to an all-channels-driven condition. The RB-985 produced 123 watts at clipping with all five channels feeding an 8-ohm load. It also delivered somewhat higher power (178 watts) when only one channel was driven, suggesting that its power supply apportions current capacity in response to demand, at least to a degree. The amplifier got warm but never truly hot to the touch, and it did not shut down even in response to severe overdriving.

The Rotel amp ran just warm while powering the reference system. Sound quality was open, detailed, and generally smooth. The warmth and weight of the bottom octaves was notable, and the RB-985 seemed more than capable of delivering full-range impact in all five-channel modes. In high-volume Music Surround playback, the system sounded very punchy, but the sound became a bit constricted and then discernibly harsh as the amplifier reached its limits, which were impressively high nonetheless — and perhaps just a

tick below the Carver amplifier's top usable volume.

The Bottom Line

Sonically, the differences between these four amplifiers were subtle, to say the least, and even the observed dynamic differences did not always correlate with specified power (nor did I expect them to). Although each of these amps will drive 4-ohm loads, none of them particularly excelled at that task, an unrealistic expectation for an amplifier in this price range. Each amp has some noteworthy attributes.

The B&K AV2500 is the obvious champ in terms of versatility and compactness, although it does deliver less power than the others. Carver's AV-505 produces the most overall grunt, while the Harman Kardon PA 5800 just might be the most sonically refined in ultra-critical listening (a very gray area, indeed), especially as it approaches its limits. The Rotel RB-985 delivers plenty of power and provides a convenient, one-cable hook-up option.

One thing the four amps absolutely have in common is value. Only a bare \$200 separates the most expensive model from the least expensive. Their prices will let you combine them with a variety of A/V preamps and still keep the tab well under \$2,000, somewhat more than the cost of a typical A/V receiver yet decidedly less expensive than the typical multi-amplifier system. And I imagine that's precisely the idea each of these four makers had in mind. □





STORM PROOFING YOUR SYSTEM

In the opening of the movie *Twister*, it was the lightning strikes that terrified me, even more than the tornado. When the lightning bolt struck the utility pole, I knew that not only the TV was toast, but so was every other bit of electronic gear in the house. I saw it happen firsthand when my neighbor was lucky enough to dodge a tornado, but awoke to find that every electrical device in his house was history because lightning struck his utility pole. Even his light bulbs popped from the tremendous voltage surge.

Lightning is far more common, and kills more people, than headline-grabbing disasters such as tornados. It also fries more electronic gear. When vacuum tubes reigned supreme, electronic equipment could withstand substantial jolts from the power lines. Today's solid-state and microprocessor-based equipment is far more sensitive to voltage spikes and current surges. But you can protect all of your sensitive A/V gear — most of the time, anyway — by following a few simple suggestions. Lightning isn't the only potential environmental threat to your equipment, so we'll provide other storm-proofing and shockproofing tips as well. It is the biggest danger, however, so we'll start with it.

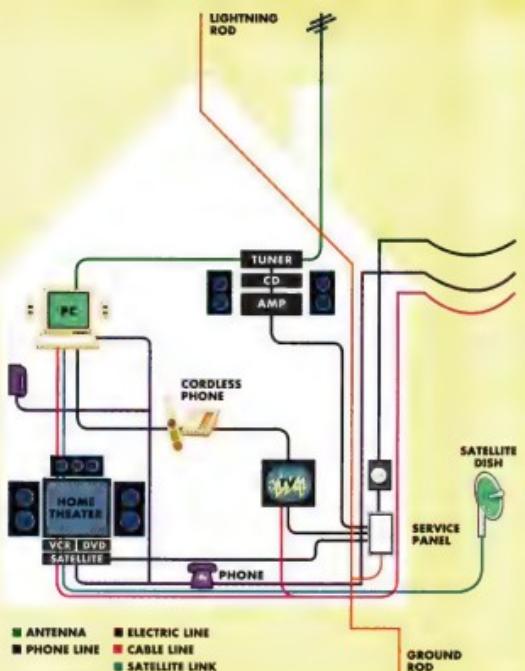
The most effective way to reduce the threat of a lightning strike is with a properly installed lightning-rod/ground-rod system. Contrary to popular belief, lightning rods do *not* increase the chance of a lightning strike, according to the Florida Cooperative

Extension Service. They don't bleed off electrical charges to minimize the chance of a strike, either. But if lightning *does* strike, a lightning rod can route it safely to ground and protect the structure to which it's attached. When it comes to direct lightning strikes, however, there are no guarantees. You can do everything right and still have lightning destroy all of your electronic gear. But you increase the chances of its survival with the proper installation of protection equipment.

The National Electrical Code (NEC) is the Ten Commandments of electrical wiring. One of its most important requirements is that the wiring in all buildings be grounded to earth at only one point, usually where the power lines enter the structure. Some audiophiles install special electrical outlets with a ground that is separate and isolated from the ground of the house wiring. While those outlets can eliminate ground loops and their associated hum, using them could also cause the

BY RICH WARREN

HAL
Mayforth



FOR FULL PROTECTION from lightning-induced and other voltage surges and spikes, every path into your house must be protected. A PC, for example, might be connected not only to the power lines but also to a satellite dish or cable line for video reception or Internet access and to the telephone line for dial-up connections. A voltage spike in any of those lines can get into any other — and then into any equipment in your house that's connected to those other lines. It is of utmost importance that all ground lines return to the same point, namely your house's master electrical ground.

death of an audio system — or worse, the death of an audiophile.

According to Thomas A. Seidl, an applications engineer with the Wisconsin Electric Power Company, "Running all those isolated-ground terminals to an 8-foot ground rod will eliminate ground loops. But if one of the pieces of electronic equipment develops a fault, it will never trip a circuit breaker and it will present a shock hazard. Further, during a lightning storm, a lightning-induced surge . . . looks for all of the grounds and will 'see' that 8-foot rod through the equipment. The result will be failed electronics. In this case a surge suppressor would not offer protection, but would just be an additional piece of failed hardware."

Michael Boucher, a power-quality engineer and a twenty-year veteran of Illinois' Commonwealth Edison, concurs: "A cable company typically drives a ground rod out behind your house, independent of the grounding of your electrical system. First of all, that violates the NEC. With a separate ground rod for cable, telephone, or a satellite dish, any components that are connected between the AC power system and the separate ground, such as the cable converter box and TV set, are actually laced between the grounding points. Those components are subject to stresses because of the separation between the grounds. People have been killed from that, and definitely components get blown up because of it. It's something that surge suppres-

sors can't correct." Installing surge suppressors can even make things worse because it may create a false sense of security. Boucher noted that electric-utility companies are generally willing to make house calls to inspect and correct grounding problems.

Equipment-damaging surges are rarely generated by power companies themselves, although Boucher described "over-voltages" produced by utilities. Most electric utilities switch capacitor banks into their networks in the morning, usually between 7 and 8 a.m., as big power users begin to come on line. The capacitor banks are used to increase efficiency by correcting the electric company's power factor. Unfortunately, they can also generate a 100- to 600-volt transient.

Transients are also generated as power sources are switched to different portions of the grid to accommodate changing usage. "When you're de-energizing a huge portion of load and then re-energizing it," Boucher explained, "there will be a momentary inductive-type transient . . . that can be a couple of hundred volts." Such spikes would probably fall beneath a surge suppressor's threshold, he said, but "when components designed for 120 volts see more than 120 volts, there's always some extra heat created inside them, and that heat will cause component degradation. The degradation is cumulative. If they see a little bit extra voltage every day over five years, that would have the same effect as a lot of voltage at once." So while the jury's still out on whether the power conditioners beloved by audiophiles influence sound quality, they might very well increase the life expectancy of the equipment.

A lightning strike on a power line within a half-mile of your house can produce up to 100,000 volts at frequencies of up to 100 kHz. Boucher put it bluntly: "Components will blow up when lightning strikes." Big-city dwellers tend to be less exposed to lightning because their power and telephone lines are underground, but other factors — including the starting and stopping of elevators and other heavy machinery — can send surges to urban equipment. While nowhere near as damaging as lightning bolts, those surges can cause problems too.

A thriving industry has developed to halt surges before they fry your electronic equipment. Officially called Transient Voltage Surge Suppressors (TVSS) and popularly known as surge

protectors, they should be considered a necessity of modern life.

What makes a good surge suppressor? Few companies agree on what ratings are adequate for such characteristics as reaction time, power dissipation, and clamping voltage — and we can't settle their arguments here. But one thing is certain: Never buy a suppressor without a UL label.

Be aware, however, that there is a difference between surge suppressors listed as TVSS devices and those listed simply as current taps. Look at the UL label. Devices that are tested for their ability to suppress surges will say TVSS or UL 1449. Surge suppressors that are tested for safety only, and not performance, are listed as current taps, and the word "tap" will appear on the UL label.

Because of bogus UL labeling of Chinese-manufactured suppressors and power strips that were not legitimately UL listed, Chinese-manufactured products must now bear a special holographic UL label that's more difficult to counterfeit.

The Institute of Electrical and Electronics Engineers (IEEE) notes that the chance of a major lightning strike at your nearest utility pole is once in 8,000 years — but there are millions of utility poles in the U.S. According to data gathered by the National Lightning Detection Network, Floridians should be standing in line to buy surge protectors, while Californians can sit at home and wait for an earthquake.

David Day, vice president of technology at the major surge-suppressor manufacturer SL Waber, of Mt. Laurel, New Jersey (609-866-8888), swears by the IEEE's recommendations. SL Waber produces "clamp" — or hold the maximum voltage — at 600 volts, which the IEEE says is adequate for almost any equipment. Some surge suppressors have lower clamping-voltage values, such as 330 volts. Although that would theoretically offer greater protection, Day noted that it can actually cause premature suppressor failure and thus leave your gear unprotected: "Generally you use a 130-volt metal-oxide

varistor (MOV) to get a 330-volt clamping voltage." Many electric companies, however, manage their grids by routinely allowing the voltage to creep up at night from the standard 120 volts to as much as 136 to 138 volts. That's especially true in the Pacific Northwest or any other place supplied by hydroelectric power. The result is that a 130-volt MOV will start to clamp, heating up and failing prematurely.

SL Waber's patented Rhino line of surge suppressors includes some models with three stages of protection: an MOV across all three lines and in parallel to raise the energy-handling rating; a silicon avalanche diode, which is a solid-state device with a very fast clamping time; and, for high-power dissipation, a gas tube. There are four Rhino models priced from \$79 to \$1,199, and they can all protect AC lines, telephone lines, and coaxial cable, satellite-dish, or antenna feeds. The three-stage protection begins with the PLC-600 at \$179.

Kevin Halpin, engineering manager of Panamax in San Rafael, California (415-499-3900), another surge-suppressor manufacturer, warned that satellite dishes need special consideration: "Their frequencies go as high as 1,450 MHz, so the protection component in your product must not attenuate these signals. We have a tuned sat-

SL Waber's RhinoPower ISO-20V surge suppressor (\$1,199) is designed to protect high-current audio power amplifiers.



Panamax's MAX 1000+ surge suppressor (\$299) features sequential start-up and shut-down to eliminate amplifier thumps.



APC's Back-UPS Models 200 and 280 uninterruptible power supplies/surge suppressors (\$119 and \$139) feature user-replaceable batteries.

ellite-protector circuit that attenuates signals less than 1 dB. It also has a clamping voltage of 27 volts, which is very close to the 18-volt operating level." Because installers often mount satellite dishes at the highest point of a house or in a clearing, they are as vulnerable as utility poles, so the cable from a dish — or any other antenna — into the house should always be surge-protected and equipped with a lightning arrestor. A lightning arrestor typically contains a spark gap that acts as an insulator during normal operation but breaks down at high voltages — such as those that would be encountered if lightning struck an antenna or transmission line — and diverts the voltage to ground.

The new \$79 Panamax MAX 6 includes intelligently arranged outlets that let you plug in several power-adaptor cubes. You can also upgrade it with snap-in modules to protect phone lines and coaxial cables. Panamax designed the MAX 1000+ (\$299) and MAX 500 (\$199) specifically for A/V systems. Both include eight outlets and coaxial protection.

Day and Halpin agreed that whole-house surge suppressors, placed at the electrical service panel, provide a good initial line of defense. These devices in the \$50 to \$200 price range can protect your appliances and less-sensitive audio electronics, such as power amplifiers. You will need a competent electrician to install a whole-house suppressor.

An uninterruptible power supply (UPS) offers another



The QuakeHold TV strap and VCR/stereo strap from Trevco (\$14.99 and \$8.99) can stabilize your audio/video equipment in the event of an earthquake.

route to protecting your equipment, with the bonus that it allows continued use of equipment in a power outage — at least until its batteries are depleted. American Power Conversion (APC), of West Kingston, Rhode Island (401-789-5735), one of the leading suppliers of UPS units, says that its products serve A/V gear as well as computers. Each UPS from APC contains sealed lead-acid batteries to provide power in the event of an outage. Priced from \$99 to over \$1,000, they also give multistage surge protection.

A VCR plugged into a UPS will never forget the time or what you have programmed. So if you leave for vacation and the power fails while you're gone, you'll return to find your favorite show on tape after all. The UPS also protects against voltage sags and surges, improving the longevity of your gear. But no matter how elaborate your protection, you should always disconnect your A/V system from the power line, cable feed, and telephone line when you leave home for an extended period.

You don't need a lightning strike to plunge you into silence or darkness, but common sense can protect your equipment from other hazards. Set up your gear in a place where it will be protected from falling objects. In the event of severe winds that shake the walls, or an earthquake, you don't want shards of glass or pottery falling into your components — or water from an overturned pitcher or vase.

Components with exposed mechanisms, such as turntables and open-reel tape decks, should always be protected by hard covers. Other gear can benefit from vinyl or cloth covers.

Covers do triple duty, protecting gear from falling debris, dust, and, to a lesser extent, air pollution. Always remember to remove covers during operation. Not many covers are made specifically for A/V gear, but computer-printer covers or small-appliance covers will often work. Prices range from \$5 to \$50 depending on design, size, and material.

While storms may rain outside, you can also insidiously destroy your gear from the inside. Air pollution, tobacco smoke, and cooking smoke can all permeate and slowly degrade your electronics. Smoke can gum up sensitive mechanisms and corrode circuit boards. Keep electronics away from the kitchen, and try to avoid smoking near your gear. If you smoke, or live in an area with significant air pollution, consider a room (or whole-house) air purifier. HEPA (high-efficiency particulate air) models range from \$50 to \$500.

Vacuum-clean the top covers and ventilation grilles of equipment regularly, because dust interferes with heat dissipation and can also clog mechanisms. Vacuuming is better than dusting, as there's less chance it will force the dust *into* a component. Never use cleaning sprays in any area where they can enter a component.

Never place electronic components near a radiator or heating vent. If you lack air conditioning, use a small, quiet room fan, or a whisper fan specially designed for electronics, to circulate air around and through the equipment. Similarly, don't place electronic equipment near a window. Windows pose multiple threats: heat from sunlight, water damage if you accidentally leave the window open in a storm, and smash-and-grab theft.

San Andreas is not my fault, but it

may be yours, and when it moves, your system may imitate Humpty Dumpty. Most commercially made TV/VCR stands now include tie-down straps. TV's are notoriously front- or screen-heavy and tend to tip forward, which would not only damage the equipment but could also crush a pet or child. If your stand doesn't have a tie-down strap, consider screwing eyelets into the wood and using rubber bungee cords. Ideally, you would even put an eyelet in a wall stud and strap the stand to that. Be sure that the stand or component is well balanced to begin with. Your gear should never dance, even when it's reproducing disco.

Trevco, of Monrovia, California (1-800-418-7348), manufactures Quake-Hold safety straps and anchors specifically for A/V systems. The adjustable Quake-Hold straps do not damage wood or finishes and can be quickly removed and fastened. The company even makes a reusable plastic putty to hold small, light objects in place.

If your home-entertainment center is in the basement, even a purportedly dry one, your gear should be several inches — preferably at least a foot — off the floor. In the event of a flood, move your equipment to the highest floor of your home. If you have enough advance warning, wrap each component in a heavy-duty plastic garbage bag and tie a tight knot. Then purchase large plastic garbage cans with tight-fitting lids and place the plastic-wrapped gear inside.

Your equipment might continue to operate after it dries from an unintended bath or shower, but you should definitely take it to a competent service center for a dry cleaning and inspection. For example, if you spill a soft drink or gin and tonic into your receiver, unplug it immediately and let it dry. It will probably work even without a cleaning, but the residue will slowly corrode the circuit board and will ultimately cause the unit to fail. Similarly, flood waters contain dirt and impurities that can cause damage even after the water evaporates.

David Heywood of the Sony Service Center delivered the good news: "Environmental causes are generally not why products come in for service." Whether the storm is inside or outside your home theater, taking some simple precautions will insure your continued enjoyment. In the event of a real tornado, forsake your system and save your own life. Most homeowners' insurance policies will cover your gear. □

TESTING TESTING

HOW WE EVALUATE CD PLAYERS

BY DAVID RANADA

IT SEEMS THAT FEW AUDIOPHILES appreciate that the 16-bit linear encoding used by the CD system imposes strict limits on CD-player performance in several traditional audio parameters. The figures for distortion, signal-to-noise ratio (S/N), and channel separation of a "perfect" CD player are not, respectively, zero, infinity, and infinity. Yet manufacturers commonly specify performance exceeding the theoretical capabilities of the CD system. Their numbers are not attempts at deception — at least, I hope they aren't — but result from improper measurement techniques stemming from inadequate test CD's, problems that we have directly addressed at STEREO REVIEW.

Dithering Around

The main fault with most test CD's is that their encoded signals do not contain dither, a very low-level random noise introduced into the test signal before it is quantized (turned into a 16-bit binary number). Although dithered test signals place limits on measured CD-player performance, they have four distinct advantages:

1. Dithered test signals are more representative of actual music signals. Signals from music CD's are naturally dithered by background noise in the recording microphones, mixer consoles, and analog-to-digital (A/D) converters used in recording studios. In fact, inadequate dithering during re-

cording can cause some of the sonic grittiness and noise-modulation effects noted by critics of digital audio.

2. Unlike an undithered test signal, the contents of a dithered test signal are distortion-free and easily predictable. Figure 1 on the next page shows output spectra from a "perfect" CD player reproducing three low-level sine waves at frequencies around 1 kHz. (The player is perfect because it consists only of mathematical formulas in my computer.) The lumpiness of the red and blue traces indicates distortion present in the test signals themselves, which are undithered. Furthermore, a change in frequency of less than 3 Hz, which is the only thing that

happened between the red and blue traces, produces substantial changes in the distortion spectra.

In contrast, the spectrum of the dithered tone shown in the green trace contains only low-level noise (the flat portion) and a distortion-free sine wave (the big spike in the middle). Changing the dithered tone's frequency or level doesn't alter the signal content: The big spike simply moves left or right to the new frequency and up or down to the new level; the noise "floor" stays put. You hear only a sine-wave pure tone and an unchanging low-level hiss. This spectral simplicity enables a tester to quickly identify any distortions or noise added by the player.

3. Since the contents of a dithered test signal are so easily accounted for, they can be used to calculate the theoretical limits against which the performance of a real-world CD player may be judged.

4. Dithered test tones prevent a manufacturer from "cheating." Quite a few common digital-to-analog (D/A) converters are designed to self-mute when they detect a long series of binary zeros in the data. All-zero data streams are typical of the conventional (nondithered) signals used in tests for channel separation and S/N, and when a player's D/A circuits mute during these tests the resulting measurements can be considerably better than what is obtained with music and much better than theory would predict. These exaggerated numbers show up in data sheets, especially in noise specs.

Since suitable dithered CD test signals were not available from commercial sources, we decided to generate them by computer. I wrote programs to produce dithered digital test signals of known and mathematically verifiable accuracy. The programs' outputs were 16-bit Windows sound files on my lab computer's hard drive. These files were in turn transferred onto a recordable CD (CD-R). Several copies were made, and these have now been furnished to our other equipment reviewers. Let's look at how these signals affect several traditional tests.

Channel Separation

The channel-separation test signal consists of dithered sine-wave tones in the left channel. They are recorded at 0 dBFS (decibels referred to digital

full-scale), the maximum encodable digital audio amplitude. In the right channel, the disc has only dither. To measure separation, a one-third-octave bandpass filter is set to the test-tone frequency and hooked to the player's right-channel output in order to "look" for the test signal in the "unfed" channel. The left-channel sine-wave level minus the filter's output level is the channel separation, expressed in decibels; the higher the number, the better.

Even if there were no leakage of the test sine wave from left to right, the bandpass filter would have some output from the right-channel dither, which imposes a limit on a separation measurement. Also, the fixed bandwidth of the filter causes the theoretical separation to decrease from low to high frequencies: A one-third-octave band of dither signal measures some 30 dB higher in level at 20 kHz than at

20 Hz. So with our test signal and measurement technique, the maximum possible channel-separation figures are 123.2 dB at 100 Hz, 113.3 dB at 1 kHz, and 100.9 dB at 20 kHz. Most CD players will not reach this level of performance, especially at 20 kHz, but channel separation has in general been more than adequate since the first CD player was introduced.

Distortion

Being dithered, the sine-wave signals on our test CD are inherently distortion-free. Any output from a player that is neither the test frequency nor the dither is player-produced distortion.

A player with harmonic distortion will have its output contaminated by signals that are multiples of the test frequency. If the test frequency were 1 kHz, harmonic components could occur at 2 kHz, 3 kHz, 4 kHz, and so

forth. Other, nonharmonic distortions are possible with CD players, and these will generate components that aren't whole-number multiples of the test frequency. Power-line hum is one of these distortions. Although we state our distortion measurements for all audio gear, not just CD players, as total harmonic distortion plus noise (THD+N), the actual measurement technique provides a single combined figure for total distortion (harmonic and otherwise) and noise. Here's how it works:

Our distortion test signals are dithered sine waves at 1 kHz recorded at 0 and -20 dBFS. The test equipment incorporates a narrow, band-reject "notch" filter. This filter is connected to the player's output and automatically tuned to maximally reject the 1-kHz test frequency. The notch filter's output consists of everything

FIGURE 1: DITHERED VS. UNDITHERED TEST SIGNALS

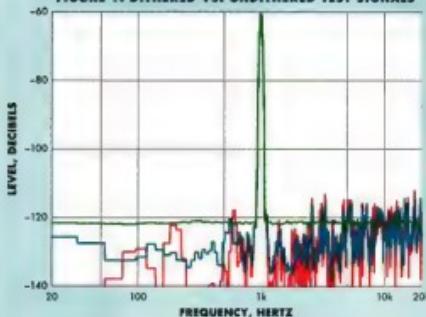


FIGURE 2: EXCESS-NOISE REFERENCE SPECTRA

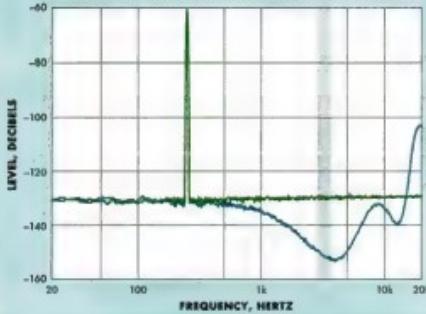
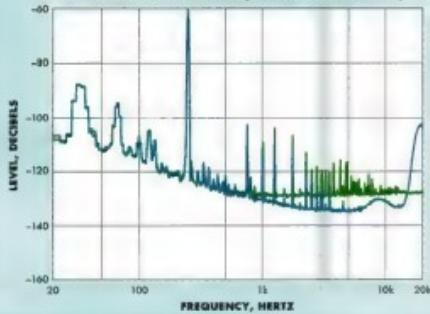


Figure 1. Undithered test tones (red and blue traces) contain their own distortion, which changes drastically with slight changes in test-tone frequency. A dithered tone (green trace) contains only a sine wave and low-level noise.

Figure 2. The test-tone spectra for our excess-noise-with-test signals both have a 251-Hz, -60-dBFS sine wave (spike). Note the much lower level of the noise-shaped EN20 dither noise (blue trace) in the 3.15-kHz measurement band (shaded area).

Figure 3. Spectra from a relatively poor excess-noise performer showing spiky distortion components as well as elevated noise levels, especially with the EN20 signal (blue trace) in the 3.15-kHz excess-noise measurement band (shaded area).

FIGURE 3: EXCESS NOISE (ANALOG DAT OUTPUT)



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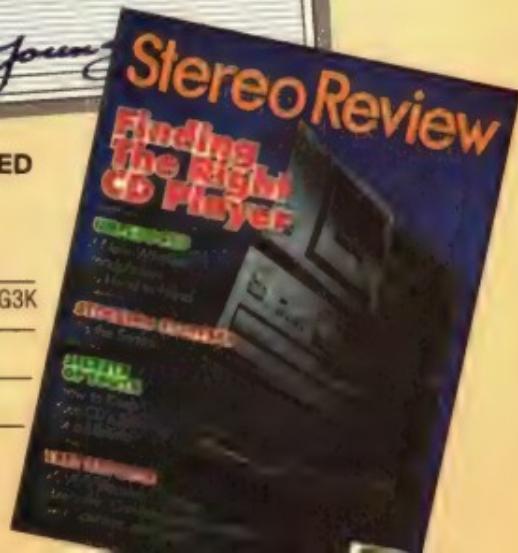
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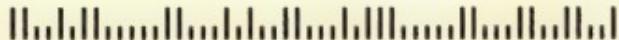
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that isn't 1 kHz: all distortion, player noise, and the noise from the dither. When the notch filter's output level is compared to the original level of the test frequency, the result, expressed as a percentage, is the distortion-plus-noise; the smaller the figure, the better. If the notch filter's output were at the same level as the original test tone, for instance, the distortion would be 100 percent.

Again, the filter's output contains noise from the dither, and this limits the best-possible distortion figures. Knowing the correct level of the dither noise, assuming a perfect (infinitely narrow and infinitely deep) notch filter, and assuming the player has no spurious output above the CD format's maximum frequency of 22.05 kHz, distortion figures for a perfect CD player as we measure them would be 0.00176 percent with the 0-dBFS test signal and ten times worse with the -20-dBFS signal, namely 0.0176 percent. These limits hold for all frequencies. Even the best numbers we've seen in our tests of real players are "worse" than these figures and often reflect the presence of power-line hum or added background noise in addition to harmonic distortion.

Noise Levels

Our test disc's noise tracks contain only dither in both channels. Since dither is very low-level noise, it will obviously influence any test of player noise, which for us consists of a frequency-weighted measurement of the player's output level when it is playing the noise test tracks. The result is expressed in (negative) decibels compared to the player's output when it is reproducing a 1-kHz, 0-dBFS signal.

The more negative the better, up to a limit. Using our test disc, we calculate that the A-weighted noise levels of a perfect player would be -95.7 dB and -99.8 dB with the player's de-emphasis circuits turned off and on, respectively. The 4.1-dB difference between these de-emphasis-off/on figures is rarely achieved in practice. These numbers are also considerably "worse" than you'll see in some manufacturer data sheets, where noise figures lower than -100 dB are common. Such specs often represent the doubly artificial condition of all-zero test signals and muting of the D/A circuits.

Excess Noise

Lately recording companies have been releasing "20-bit" CD's, that is, music recorded on 20-bit digital recorders that has been converted to the CD's 16-bit format. To get the most out of these recordings, which can provide an extended dynamic range at some frequencies, the D/A circuits in your CD player must approach 20-bit accuracy even though the converters themselves may be only 16-bit devices. As far as I know, our excess-noise tests are the only ones in use that can evaluate a CD player's performance with "20-bit" CD's. The tests make full use of theoretical limitations.

We perform four different excess-noise measurements, EN16 (16-bit) and EN20 (quasi-20-bit), each with and without a signal present. Each measurement requires a different test signal, but the test method is the same: Play the test signal, measure the level of the player's output in the one-third-octave band centered at 3.15 kHz (the vertically shaded area in Figures 2 and 3), and compare this level to what would be obtained from a perfect CD player. Those "perfect" levels are -108.25 and -127.51 dB, respectively, for EN16 and EN20 test signals. The number we publish as excess noise, however, is the *difference*, in decibels, between theory and practice. We chose 3.15 kHz because it is the standard measurement band in the middle of the frequency region at which the ear is most sensitive. Excess-noise figures can be positive or negative, though the former is much more common. Perfect performance is 0 dB in all four tests, and the closer to 0 dB the better. We have yet to find an actual player with perfect performance.

The without-signal excess-noise test tracks contain only two different types of dither. The with-signal tracks both contain a 251-Hz tone at -60 dBFS with the two types of dither. The tone's level is psychoacoustically relevant, audible at normal listening levels and yet low enough in frequency and level so that it won't mask any distortion components in the 3.15-kHz band. The reference spectra of the with-signal test tones are shown in Figure 2. The green trace is the EN16 test signal and shows the 251-Hz spike and flat 16-bit dither. The blue trace is the EN20 with-signal spectrum. It,

too, has a 251-Hz spike (hidden by the green trace), but its dither is "noise-shaped" to carve a big hole in the 3.15-kHz region of the dither. The noise-shaping used here, similar to that in professional 20- to 16-bit conversion processes, provides some 20 dB greater dynamic range in the 3- to 4-kHz region than standard 16-bit recording. When played at "live" volume levels (with a 0-dBFS tone producing sound-pressure levels over 100 dB), the flat noise of the green trace is audible as a faint hiss. The blue, noise-shaped dither is inaudible!

Figure 3 shows the analog output of a long-discontinued portable DAT recorder when reproducing these two test signals (our test CD can be used with all manner of digital audio gear). While the spectra are generally a mess, remember that our excess-noise measurements concern only the shaded 3.15-kHz region. Compared with the reference spectra of Figure 2, the recorder's background noise levels are elevated, very much so for the "20-bit" signal (its EN16 and EN20 without-signal figures are 0.5 and 13.2 dB, respectively). Moreover, you can see spiky distortion components that fall into the excess-noise band (to produce with-signal EN16 and EN20 figures of 1 and 14 dB, respectively).

Frequency Response

Several other measurements we make are not greatly affected by the presence of dither in the test tones, mainly because the test tones are so much louder than the dither that its presence (or absence) will not affect the measurement. Frequency response and output level are not at all influenced by dither. Output level is very simple: The player's output voltage is measured while it plays a 1-kHz, 0-dBFS sine wave. The signal for frequency response is a sine wave swept at a steady rate and at a constant level from 10 Hz to 22 kHz. We measure the player's output level during the sweep and note any deviations from the level the player produces at 1 kHz. This produces the typical frequency-response measurement of 20 Hz to 20 kHz +x, -y dB. For the de-emphasized frequency-response measurement the test tone rises in level as it rises in frequency according to the formula for CD pre-emphasis. A correctly behav-

ing player will still produce a constant-level output because its de-emphasis circuitry is supposed to cancel the boost.

For both frequency-response tests, the goal is to get as "flat" a response as possible, one with the smallest plus and minus deviations. Do not get obsessive about this. Once the total deviation spans a narrow range — say, 0.25 dB or less — the player has audibly flat response regardless of where those deviations fall in frequency. In that case you should concern yourself with other, more audibly significant tests, such as excess noise.

Linearity

Developed early in the CD era, the linearity measurement assesses the accuracy of the voltage steps a player's D/A converters produce. Measuring linearity is simple. First, we note the player's output at 0 dBFS (this is our output-level measurement). Next, we play a series of 1-kHz dithered tones recorded at lower calibrated levels, -60 to -90 dBFS in 10-dB steps. Our tests use a narrow, 1-kHz bandpass filter to remove everything but the test tone, and we measure the player's output voltage at these recorded levels. We compare the results to the theoretically correct output voltage (based on the 0-dBFS output level), and the difference is the linearity *error*. Usually the performance at -90 dBFS is the worst, and that is therefore the only figure we print. Ideal performance in this test is 0 dB error at all levels; in practice, a linearity-error measurement smaller than 0.2 dB can be considered negligible as it falls within our test's margin of error.

Despite the long tradition of linearity testing, a distortion measurement is a sonically more relevant way to gauge D/A linearity. Distortion, after all, is the primary audible byproduct of nonlinearity. And it is extremely unlikely that you will ever *hear* a linearity error as the deviation from ideal output level that we measure. Unfortunately, making a THD measurement below -60 dB is complicated by either the built-in distortion of a nondithered test tone or the dither of a dithered tone (remember Figure 1). So the type of linearity measurement we perform is really most useful in predicting a CD player's performance with quasi-



Simulated disc damage on the Pierre Verany test disc. We use the bottom-most wedge.

20-bit discs: A player cannot achieve superior results in the EN20 tests without excellent linearity.

Error Correction

For this measurement we use a commercially available test CD, the second in a set of two on the Pierre Verany label (*Digital Test*, PV.788031/32); the first CD is a demo and test-tones disc. Disc Two has fourteen tracks containing areas of simulated disc damage that were created by interrupting the data feeding the disc-mastering laser system. The interruptions were timed to produce flat (pit-free) areas on the disc that, if unwound into a line, would range from 50 micrometers (millionths of a meter) to 4,000 micrometers (4 millimeters) in irregular steps. Wound up into a spiral CD track they create a wedge-shaped pattern of smooth areas (see photo).

Remember that these wedge-shaped areas are *simulations* of disc damage. They do not necessarily interact with a CD's laser-servo and error correction systems exactly the way real-world disc defects do. There are three types of real disc damage: 1) laser-side scratches that can block the laser beam altogether or redirect it to a nearby track, 2) inclusions (particles) of foreign matter within the disc substrate that can obscure data on the disc, and 3) information-layer damage in which recorded data are physically destroyed, usually by a deep *label-side* scratch. The smooth areas on the Pierre Verany test disc do not optically mimic any of these defects very well.

Furthermore, the "prerecorded" disc defects all occur during a full-scale (0-dBFS) 500-Hz test tone. The tester is supposed to play each track and to

note the first track during which inappropriate player behavior is *heard*. Such behavior ranges from clicking noises (caused by the failure of the player's error-correction/interpolation calculations) through skipping to the CD equivalent of a "stuck groove" in which the same passage keeps repeating. The loudness of the 500-Hz test tone can, however, mask the onset of player misbehavior by rendering inaudible the first low-level clicks symptomatic of error-correction failure.

Therefore, beginning with this issue, we have decided to considerably toughen our measurement technique to more completely isolate the "defect" that first produces any sort of inappropriate clicking. To do so, we filter out, with a notch filter, the 500-Hz tone and listen to the resulting output from the player under test. Compared with our former procedure, this has the effect of reducing the defect size at which player misbehavior becomes apparent. The new test is also more repeatable, more consistent, and less subject to judgment calls by the tester.

Still, our error-correction test results are not necessarily predictive of how well a player will cope with real-world disc damage. We have quite a few "unplayable" music discs that will burble, skip, or stick even though their visible defects are smaller than the player's defect-size limit as determined with the Pierre Verany CD. The best advice we can give is that a player with a larger defect-size limit will probably be better able to cope with real damage, provided that you are comparing players tested from this issue forward.

The revision of our error-correction test and the development of our excess-noise tests are just the first in a series of new measurement techniques we will be introducing that are designed to make STEREO REVIEW's equipment tests both more psychoacoustically relevant and more representative of real-world playback conditions. Additional contemplated changes for CD-player tests include low-level distortion measurements (to supplement the linearity tests) and a new computer-calculated weighting scheme for noise tests to more accurately reflect the ear's sensitivity to noise than conventional A-weighting. Stay tuned. □



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JOHANNES BRAHMS died in Vienna on April 3, 1897, five weeks shy of his sixty-fourth birthday and nine weeks after the centenary of the birth of Franz Schubert, whom he revered (and whose piano sonatas he edited for publication). Like Schubert, Brahms was an outstanding composer of songs and filled his instrumental works with songlike themes and warm coloring that enhance their communicative power. His orchestral production was relatively small, but virtually every title is a certifiable masterpiece. On these pages we recommend the best currently available recordings. Each is a full-price CD unless indicated \otimes for midprice or \oplus for budget. Some label names are abbreviated.

Symphony No. 1, in C Minor

Istvan Kertesz brought an invigorating freshness to the Brahms symphonies; the Vienna Philharmonic gave him its collective heart; he observed first-movement repeats, and the recently remastered recordings fairly glow. No. 1, the last recording he completed before his death in 1973, is bright-eyed and free of monumentalizing (in London \otimes 448 197, two CD's, with Symphony No. 2, the Second Serenade, and the Haydn Variations). Bruno Walter's final Brahms cycle, recorded still earlier with an orchestra assembled for him in Hollywood, also benefits from first-rate remastering. While the First Symphony was one of Walter's specialties throughout his career, his performance of it at age 83 is as remarkable for its spontaneity as for its warmth and overall communicative power (Sony \otimes 64470, with Haydn Variations and *Academic Festival Overture*).

Symphony No. 2, in D Major

Vladimir Ashkenazy and the Cleveland Orchestra match the work's character splendidly with a vigorous, affectionate reading that's handsomely recorded (London 433 549, with Dvorak's String Serenade). Herbert von Karajan's final recording of the work shows him and his Berlin Philharmonic at their formidable best (DG 423 142, with the Haydn Variations), and the Second Symphony is perhaps the strongest component of Istvan Kertesz's cycle (London \otimes 448 197, two CD's, with Symphony No. 1, the Second Serenade, and the Haydn Variations).

Symphony No. 3, in F Major

George Szell's performance of the Third Symphony, definitely the high point of his Brahms cycle with the Cleveland Orchestra, comes with his bracing reading of the Second (Sony \otimes 47652). Bruno Walter's equally convincing Third comes with a mellower, more ingratiating account of No. 2 (Sony \otimes 64471). Günter Wand's compassionate digitally recorded version with the North German Radio Orchestra is paired with the Symphony No. 4 (RCA \otimes 60088).

Symphony No. 4, in E Minor

Among digital recordings of this work, the one by Carlos Kleiber and the Vienna Philharmonic is the most stimulating performance (DG 400 037). Vladimir Ashkenazy and the Cleveland Orchestra are not far behind, with even richer sound and an interesting second work on their disc: Brahms's Handel Variations in the orchestration by Edmund Rubbra (London 436 853). But Istvan Kertesz was again at his

best in the Fourth Symphony (London ⑩ 448 200, two CD's, with the Symphony No. 3 and Serenade No. 1), and Bruno Walter's great authority also makes itself powerfully felt in this work (Sony ⑩ 64472, with the *Tragic Overture* and *Schicksalslied*).

Piano Concerto No. 1, in D Minor

There is poetry as well as passion in Stephen Kovacevich's remake with the London Philharmonic under Wolfgang Sawallisch (EMI 54578, with the Op. 91 songs) and also in the classic recording by Emil Gilels with Eugen Jochum conducting the Berlin Philharmonic (DG ⑩ 431 595, with the Four Ballades for piano, or ⑩ 447 446, two CD's with the Piano Concerto No. 2 and other pieces). Also recommended: Claudio Arrau with Bernard Haitink and the Concertgebouw Orchestra (Philips ⑩ 438 320, two CD's, with the *Tragic Overture* and Haydn Variations); Rudolf Serkin with George Szell and the Cleveland Orchestra (Sony ⑩ 48166, with brief concerto pieces by Mendelssohn and Schumann); Arthur Rubinstein with the Chicago Symphony under Fritz Reiner (RCA ⑩ 61263, with solo pieces).

Piano Concerto No. 2, in B-Flat Major

Krystian Zimerman's performance, with Leonard Bernstein conducting the Vienna Philharmonic (DG 415 359), is exhilarating and expressive, as is Stephen Kovacevich's, again with Wolfgang Sawallisch (EMI 55218, with more songs). Also recommended: Rudolf Serkin and George Szell with the Cleveland Orchestra (Sony ⑩ 53262, with Strauss's *Burleske*); Emil Gilels, this time with Fritz Reiner and the Chicago Symphony (RCA ⑩ 60536, with the Haydn Variations); Van Cliburn, also with Reiner (RCA ⑩ 68480, with an outstanding account of MacDowell's Second Piano Concerto).

Violin Concerto in D Major

Joshua Bell's recording with the Cleveland Orchestra under Christoph von Doh-



nanyi is one of the most compelling presentations of the work in years (London 444 811), and it comes with an imaginatively chosen discmate, the Schumann Violin Concerto. Two classic recordings easily retain their exalted status and are also very good buys: Isaac Stern with Eugene Ormandy conducting the Philadelphia Orchestra (Sony ⑩ 46335, with the Double Concerto); Jascha Heifetz with Fritz Reiner and the Chicago Symphony (RCA ⑩ 61495, with the Tchaikovsky Violin Concerto).

Double Concerto (Violin, Cello, and Orchestra) in A Minor

The versions by the teams of Isaac Stern and Leonard Rose, with Eugene Ormandy conducting (Sony ⑩ 46335, with the Violin Concerto), and David Oistrakh and Mstislav Rostropovich with George Szell (EMI ⑩ 64744, with Beethoven's Triple Concerto) are both outstanding, and the sound is just fine on both discs. Also to be reckoned with: Jascha Heifetz and Gregor Piatigorsky with Alfred Wallenstein conducting (RCA 6778, with double concertos by Bach and Mozart) and Henryk Szeryng and Janos Starker with Bernard Haitink (Philips ⑩ 446 194, with the Violin Concerto).

Serenades Nos. 1 and 2

These early works — the one robust and for full orchestra, the other more intimately scaled and without violins — are seldom performed, but they contain some of the most appealing music Brahms wrote. Istvan Kertesz's treasurable recordings with the London Symphony sound better than ever in their new remastering: No. 1 is frustratingly split between two CD's in a set with the Third and Fourth Symphonies (London ⑩ 448 200); No. 2, intact, comes with the First and Second Symphonies and the Haydn Variations (London ⑩ 448 197, two CD's). The recordings by Jiri Belohlavek and the Czech Philharmonic, almost as fetching, are on a single CD (Supraphon 11 1992).

Shorter Concert Works

The masterly Variations on a Theme by Haydn (or, in any event, a theme once attributed to Haydn), the *Academic Festival Overture*, the *Tragic Overture*, and the *Alto Rhapsody* are well represented on CD's of various symphonies. In particular, Bruno Walter's near-definitive accounts of the Haydn Variations and the *Academic Festival Overture* come with the Symphony No. 1 (Sony ⑩ 64470), and Herbert von Karajan's fine account of the Haydn Variations is with his Symphony No. 2 (DG 423 142). Adrian Boult's enlivening readings of all four of these works (with Janet Baker in the *Alto Rhapsody*) as well as the two serenades might be a convenient alternative (EMI ⑩ 68655, two CD's). For orchestral versions of the twenty-one Hungarian Dances, the recordings by Kurt Masur with the Leipzig Gewandhaus Orchestra (Philips 411 426) and Neeme Järvi with the London Symphony (Chandos 8885) are both eminently satisfying.

A German Requiem

A performance tradition built on tempos much slower than Brahms actually indicated had made this quite a dull piece. Moving it along can make a most agreeable difference, as Roger Norrington demonstrates in his recording with two first-rate soloists (soprano Lynne Dawson and baritone Olaf Bär) and his own chorus and period-instrument London Classical Players (EMI 54658); the early, seldom-heard *Begräbnisgesang* is included by way of prelude. Kurt Masur, with the New York Philharmonic and Westminster Choir, has somewhat less effective soloists (Sylvia McNair and Hakan Hagegard), and his live recording is not as rich sounding, but the performance overall is inspiring, pulsing with life while acknowledging death (Teldec 98413). □



*D*id you actually consider
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Ringo, Wolfgang, or Miles?



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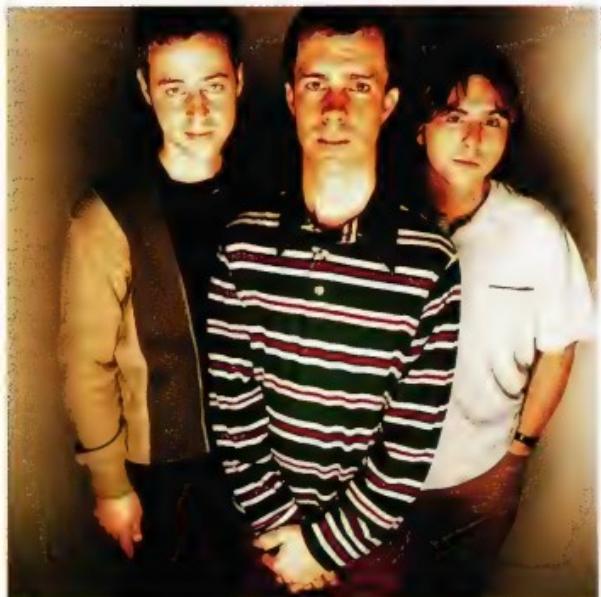


obsessed with sound



BEST OF THE MONTH

STEREO REVIEW'S
CRITICS CHOOSE THE OUTSTANDING
CURRENT RELEASES



Ben Folds: A Different Piano Man

In a medium that remains driven by guitars or electronic keyboard tomfoolery, Ben Folds pounds an acoustic piano, and the result is like nothing you've ever heard. Imagine a high-IQ Jerry Lee Lewis, Billy Joel without schmaltz, Todd Rundgren before antipop snobbery, a cutting-edge Elton John.

Swirl them all together with an uncensored, let-the-chips-fall libretto about everyday life in a college town, and you'll have a rough idea of the musical landscape of *Whatever and Ever Amen*, the second album from Ben Folds Five.

There are only three of them (the name's a joke), but they make enough

noise for a quintet. The new record was made at home in Chapel Hill, North Carolina, with rough edges intact and snippets of chatter left in. If this were a film, it would be a low-budget charmer shot with a camcorder. The conversational use of profanity and the casual references to herbal smoking materials enhance its this-is-how-we-live documentary sensibility, but don't let the lack of polish or pretension fool you: These guys are virtuosos. They're just not overly serious about it.

The opening track, "One Angry Dwarf and 200 Solemn Faces," is a combustible how-do-you-do, with Folds, bassist Robert Sledge, and drummer Darren Jesse Lee launching a roiling, full-thilt revenge song that doesn't let up for a second. "Fair" follows with billowy harmonies reminiscent of 10cc's "I'm Not in Love" and some hooky vocal chirping in lieu of a chorus. Displaying an unjaded knack for classic songcraft and lingering melodies, the trio pays tribute to an airheaded free spirit in the affectionate, sunny "Kate" and strikes musical and lyrical blows against fashionable boredom in "Battle of Who Could Care Less," which meanders and modulates restlessly. There are serious moments, too, such as "Brick," which (if I'm reading it correctly) appears to be about an ummerry Christmastime abortion, sung from the boy friend's perspective.

Folds is an aggressive, accomplished pianist whose dynamic attack and punk-rock approach to barrelhouse and stride styles open up fresh possibilities for the instrument. And Ben Folds Five — neither alternative nor mainstream — is a newfangled alloy whose self-made stance and implicit message can best be summed up in a few sage words: Be who you are.

Parke Puterbaugh

BEN FOLDS FIVE:
Whatever and Ever Amen.

One Angry Dwarf and *200 Solemn Faces*; *Fair*; *Brick*; *Song for the Dumped*; *Selfless*, *Cold*, and *Composed*; *Kate*; *Smoke*; *Cigarette*; *Steven's Last Night in Town*, *Battle of Who Could Care Less*; *Missing the War*; *Evaporated*. 550 MUSIC/EPIC/CAROLINE 67762 (51 min).

A Human-Scale Mozart Requiem

The circumstances surrounding Mozart's Requiem will always be one of the great enigmas of classical music: A mysterious "messenger in black" arrived at the composer's door, offering him a large sum of money to compose a Requiem Mass. Mozart, pernicious as usual, accepted the commission, but when the man in black returned a month later for the score, he hadn't even begun writing it. Yet as soon as he started

BEST OF THE MONTH

working on the project, he fell ill. He declined rapidly, suspecting that he was being poisoned and that he was writing his own Requiem. He left the work unfinished at the time of his death; the sketches for the "Lacrimosa" section were probably the very last notes he wrote. (What a great story! Somebody ought to make a movie of it.)

The somber, majestic choral masterpiece that resulted from this bizarre episode is suffused with a palpable sense of tragedy. Mozart, the most sympathetically human of composers, is nowhere more powerfully felt as a presence than in the Requiem. In a new recording on Harmonia Mundi, the distinguished Belgian early-music conductor Philippe Herreweghe and his Orchestre des Champs Élysées present an exquisitely polished, spiritually compelling reading of the work. They have stripped away the patina of Romantic grandeur that has attached itself to the piece and reconceived it on a noble, human scale that allows Mozart's voice to speak through the music with freshness and clarity.

Herreweghe assembled a superb cast of young vocalists for the recording. Soprano Sibylla Rubens and tenor Ian Bostridge are particularly fine, and if the bass-baritone, Hanno Müller-Brachmann, seems a trifle insecure in his lower register, he makes a virtue of necessity by bringing a plangent note of inner struggle to his parts. Yet the stars of this recording are the choirs, the Chapelle Royale and the Collegium Vocale, whose voices blend with melting suavity yet speak with passionate eloquence, like a living being with many tongues.

Herreweghe chose to use the Süssmayr completion of the score (the one commissioned by Mozart's widow, Constanze) for

KRISTIN CAGLEMAN/HARMONIA CD



5 Chinese Brothers: from left, DeMeo, Foglino, Meltzer, Thomas, and Antonakos

the excellent reason that it was written by an intimate associate of Mozart's and has "honorably survived two centuries." The CD is filled out with a fascinating fragment, the *Kyrie* (K. 341) for orchestra and mixed choir in the same key, D Minor, as the Requiem.

Jamie James

MOZART: Requiem; Kyrie (K. 341).

Sibylla Rubens (soprano), Annette Markert (alto), Ian Bostridge (tenor), Hanno Müller-Brachmann (bass-baritone); La Chapelle Royale, Collegium Vocale; Orchestre des Champs Élysées. Philippe Herreweghe cond. HARMONIA MUNDI 901620 (54 min).

Having Fun with 5 Chinese Bros.

Neither Oriental nor siblings and sometimes not even a quintet — they took their name from a 1938 children's book — the New York-based 5 Chinese Brothers turn out an utterly fresh and unpretentious brand of country-rock. On their third album, *Let's Kill Saturday Night*, they flirt with Jimmie Rodgers, Neil Young, and the Beatles but never fall into any one style hard enough to wreck their own creative vision.

All of the four main Brothers (who are often joined by drummer Pete DeMeo) are writers, and while their songs aren't wedded to country tradition, they don't exactly thumb their noses at the masters of the genre. Bassist Paul Foglino, for example, tends to deliver anthems from a recovering pessimist ("That's What I Would Do," "I Can See"). Lead vocalist Tom Meltzer has a more positive view of

life, but he isn't above writing a hard-core country song like "The Boy from New York City," the Girl from Tennessee," about star-crossed lovers, or "My Love for You Has Turned to Hate," which carries the angry charm of a young Johnny Paycheck. He also takes a funny look at psychiatry in "Product of Dysfunction" and paints a winsome, John Prine-like portrait of restless adolescents in "Midnight at the Liberty."

Elsewhere, lead guitarist Stephen B. Antonakos wins the Working-Class Lament Award for "Big Boots," a laid-back country boogie. But keyboardist Neil Thomas deserves even more applause for contributing "Marionette," which taps into the soulful Memphis Sound but stands on its own as a study in doormat love. It's second only to the title track as the album's most memorable song. And that title cut, from outside writer Robbie Fulks, is a great "Screw it, let's have fun!" kind of rolling rock, capturing the pent-up frustration of being trapped in a crappy 40-hour-a-week job with no way out and too-infrequent chances to blow off steam. The chorus is so natural and insouciant, it must have written itself.

At times, 5 Chinese Brothers come across as a tad amateurish, but, in a way, that only adds to their appeal and youth-oriented stories. Nashville would do well to give them a listen: They've got their fingers poised on the kind of hillbilly Zeitgeist that college-age fans pursue in droves. Besides, if radio played more stuff like this, the world would be a happier place.

Alanna Nash

5 CHINESE BROTHERS:

Let's Kill Saturday Night.

Let's Kill Saturday Night; It's a Secret; Three Cool Guys; My Love for You Has Turned to Hate;



Philippe Herreweghe

Marionette; Look at It Rain; That's What I Would Do; Product of Dysfunction; I'm Not Finished Yet; Midnight at the Liberty; Big Boots; Blue Boy; I Call My Pain by Your Name; I Can See; The Boy from New York City; the Girl from Tennessee. 1-800-PRIME-CD 034 (48 min). 111 E. 14th St., Suite 300, New York, NY 10003.

Warmth and Brilliance in Mahler's Ninth

The recording catalog does not lack for distinguished realizations of Mahler's Ninth Symphony, beginning with Bruno Walter's historic Vienna public performance of 1938 and extending through the three versions by Herbert von Karajan to Leonard Bernstein's remarkable 1979 live recording with the Berlin Philharmonic — to mention only a few that come to mind. Yet the new Telarc version by the Cincinnati Symphony and its music director, Jesús López-Cobos, is not only a fine reading (and from a conductor not usually associated with Mahler) but probably the most

effective sonic realization of the work that I have experienced to date.

López-Cobos's pacing is quite close to that of Karajan's 1982 live Berlin recording, which is to say that it follows the main line of the Mahler performing tradition. More important, he elicits from his orchestra playing of surpassing warmth or nerve-tingling brilliance as the music demands — most notably in the wickedly difficult rondo-burlesque third movement. The crucial rhythmic "heartbeat" figure at the start of the first movement is articulated with great care but not at the expense of forward momentum. Both here and in the rondo-burlesque the contrapuntal lines are limned in superb balance and with stunning accuracy. The dynamic range and lateral imaging are altogether faultless throughout.

The pacing of the bittersweet *Ländler* second movement is dead on target all the way. The ineffably poignant final adagio is rich and vibrant from start to finish, and the pianissimo playing of the concluding pages is quite literally breathtaking.

No disrespect for López-Cobos and his remarkable players, but I would accord fully half of the credit for the recording's success to the production team and the marvelous acoustics of Cincinnati's Music Hall. This is the best-sounding Telarc

MARK & CARY LYND/CINCINNATI SYMPHONY



Jesús López-Cobos

CD I've heard since the Lorin Maazel-Cleveland Orchestra version of the Mussorgsky-Ravel *Pictures at an Exhibition*.

David Hall

MAHLER: Symphony No. 9.

Cincinnati Symphony, Jesús López-Cobos cond. TELARC 8042 (two CD's, 86 min).

NOW ON CD

POPULAR

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KINO CRIMSON: Epitaph.

DISCIPLINE GLOBAL MOBILE 9607 (two CD's). P.O. Box 5282, Beverly Hills, CA 90209. Previously unreleased live recordings from 1969 by the first lineup: Robert Fripp, Greg Lake, Ian McDonald, Michael Giles, and Peter Sinfield. Fripp outdoes himself yet again in the exhaustive sixty-page booklet. Two more CD's are available by mail-order only.

THEY MIGHT BE GIANTS:

Then — The Earlier Years.

RESTLESS 72931 (two CD's). The duo's first two albums (self-titled debut, *Lincoln*) are supple-



mented by EP sides and fifteen newly issued cuts from their Dial-a-Song service. Includes lyrics plus liner notes by the band.

THE WAITRESSES:

King Biscuit Flower Hour.

KING BISCUIT FLOWER HOUR 88024. Live broadcast from 1982 by the New Wavey purveyors of "I Know What Boys Like" and "Christmas Wrapping" (both here), led by guitarist Chris Butler and singer Patty Donahue, who died last year from lung cancer.

CLASSICAL

BRUCKNER: Symphony No. 4

("Romantic"). Berlin Philharmonic, Herbert von Karajan cond.

EMI 60942. "...imposing in architectural concept and wonderfully rich in wealth of detail" (June 1972).

THE GLENN GOULD EDITION, VOL. 8.

Glenn Gould (piano). SONY 52595. Contains the first authorized release of selections from Bach's *The Art of the Fugue* and a first-ever release of the Prelude and Fugue (BWV 898).

GREAT AMERICAN GERSHWIN.

Leonard Pennario (piano); Hollywood Bowl Orchestra, Felix Slatkin and Alfred Newman condns. ANGEL 66086. Includes *Rhapsody in Blue*, *An American in Paris*, and transcriptions for piano and orchestra of the *Cuban Overture* and a medley from *Porgy and Bess*.

LAWRENCE TIBBETT.

Opera Arias (1935-39); Concert Songs, Musicals, and Soundtracks (1928-40). Lawrence Tibbett (baritone). DILOS 5500 (two CD's). First in a series offering digitally remastered historic recordings from the Stanford University Archives. Also available: tenor Richard Crooks (DE 5501) and baritone Richard Bonelli (DE 5502).



POPULAR MUSIC

**NEW RECORDINGS REVIEWED BY CHRIS ALBERTSON, FRANCIS DAVIS,
WILL FRIEWALD, PHYL GARLAND, RON GIVENS, BRETT MILANO,
ALANNA HASH, PARKE PUTERBAUGH, KEN RICHARDSON, & STEVE SIMELS**



RICHARD BUCKNER:
Devotion + Doubt.
MCA 11564 (39 min).

★★★

Richard Buckner made waves with his 1994 debut, *Bloomed*, which showed the full weight of his influences: Neil Young, Tom Waits, Joe Ely, and Gram Parsons. While working on the follow-up, *Devotion + Doubt*, he got married. Before finishing the record, he got divorced. If that's not song fodder, nothing is, and he makes good use of it.

These stripped-down homages to Young are unrelentingly bleak peeks into Buckner's soul. Like Young's "Wrecking Ball," the opening "Pull" sets the scene of a doomed relationship using instrumentation that sounds like junkyard metal. The first lines — "He said, 'I'll pull you down.' She said, 'Yeah, I know you will.'" — introduce an intrigue that is never quite developed on the rest of the album, as Buckner seems to free-float through despair. But some beautiful writing ("My throat just feels so tight where your heart pumped all night," from "Home") and gorgeous instrumental touches (the gut-stringed guitar solo

in "Ed's Song") make up for his sometimes too precious non sequiturs, his overuse of the word "lil'" for "little," and his self-pity.

"Looking back now," he writes in his bio, "it appears that while growing up in Northern California, my family would get on Highway 99, pull off at an appropriate exit that had to do with all sorts of breakups, transfers, or reunions, then get back on, just to find another exit somewhere along." Buckner is the kind of artist who could either draw an incredible following or get off the road at an early rest stop of his own making. Just exactly which may be up to you. A.N.



BUICK MACKANE:
The Pawn Shop Years.
RYKODISC 10361 (43 min).

★★★

Before he became a roots-rocker and the unofficial bard of Austin, Alejandro Escovedo was in a sloppy, spirited punk band called the Nuns. On the surface, his current side project, Buick MacKane, is a return to those young and naive days, with obvious nods to T. Rex (from whose song the band name is borrowed) and the Stooges (whose "Loose" is the album's one cover). But don't be fooled by the associations: Too polished to be punk and too straight-ahead to be a Seventies throwback, Buick MacKane is simply a terrific rock-and-roll band, and *The Pawn Shop Years* is at least as satisfying as the thoughtful, acoustic-based music of Escovedo's solo albums.

It's also a lot more fun, especially if you

like feedback, whomping fuzz bass, and the sound of a garage band cranked into overdrive. Still, that doesn't mean Escovedo has given his songwriting smarts a rest; " Falling Down Again" is the kind of sweeping, midtempo number that gives roots-rock a good name, and "Say Goodnight," the closest thing here to a ballad, has a rough country feel that recalls the heyday of the Band. "The End" opens the album with a wonderfully simple and addictive lead-guitar line, and "Black Shiny Beast" beats the living daylights out of a John Lee Hooker riff while getting new mileage out of a familiar sex/car metaphor. The wildest stuff is saved for last: In "Wandering Eye" the guys sound like a cowpunk band trashing an old country number — the catch is that it's their own song — and the Stooges cover is as long, raucous, and excessive as it ought to be. Take Buick MacKane as proof that smart folks can make some of the best dumb rock. B.M.

NICK CAVE AND THE BAD SEEDS:
The Boatman's Call.

REPRISE 46530 (37 min).

★★★

The Boatman's Call is the Nick Cave album for people who don't like Nick Cave. Its dozen brooding songs are driven by a spiritual quest for love and faith. Eschewing vice and violence as escapes when the journey disappoints, Cave confronts each bump in the road with the clear-eyed determination of a distance runner.

The album begins with a disarmingly skeptical sentiment: "I don't believe in an interventionist God." Instead of resorting to the anti-Christian diatribe you might then expect, Cave continues on a different path: "But if I did I would kneel down and ask Him . . . / If He felt He had to direct you / Then direct you into my arms." The only instrumentation is piano and bass, and although there are seven Bad Seeds backing up Cave elsewhere on the album, they're deployed sparingly, serving to frame his frank vocals. In his stark, artful hymns to a higher power from this smudged ashtray of a world, he recalls the work of Leonard Cohen. Like Cohen, he employs his gift of language as he traces the line between anguish and redemption.

It is a credit to Cave's keen intellect that he doesn't embrace a simplistic belief in happy endings — as it is a credit to his respect for life's mystery that he no longer professes a jaded nihilism. Rather, he attempts to explore that mystery on *The Boatman's Call*, an album tinged with melancholy, solemnity, and haunting curiosity. Its unabashed maturity bodes well for Cave's future as an artist and a human being. P.P.

HOLLY DUNN:
Leave One Bridge Standing.
RIVER NORTH NASHVILLE 161 212 (38 min).

★★★

The good news is that country singer Holly Dunn is buck. The bad news is that she has left the road to return to a former vocation — disc jockeying — in, of all places, Detroit (WWW-FM, 106.7). No,

STAR SYSTEM

Excellent	★★★★★
Very good	★★★★★
Good	★★★★
Fair	★★★
Poor	★

I'm not joking, but I wish I were, because *Leave One Bridge Standing* is Dunn's strongest album in many years, probably because it reunites her with her brother, Chris Waters, who co-produced all her early records. This one is chock full of upbeat,



uptempo tunes that work equally well on the radio, at the dance hall, and in your living room. Although it offers nothing as thematically interesting as "Maybe I Mean Yes," the 1991 single that landed Dunn in hot water when somebody decided it sounded too much like music to get date-rated by, there's something for almost everybody here. She also loosens up her vocals a bit, proving she can be both sexy ("Whatshisname") and sagely wise ("Talking Goodbye"). I still think Dunn could be a head-turner if she'd put the kind of energy into her singing that she does into her writing. But maybe she has more of a writer's personality after all. Just wondering, how does that sound on early-morning radio, Detroit?

A.N.

HELMET: *Aftertaste*.

INTERSCOPE 90073 (41 min).

★★★

In a world where everything seems to be all wrong, it's possible to find beauty in ugliness when self-expression is born of unwavering, undiluted conviction — witness the work of Nine Inch Nails, Metallica, Rage Against the Machine, Hole, and Helmet. The taut, muscular grunge-rock of *Aftertaste* is a mirror held up to society, reflecting a lifetime's worth of perceived affronts and betrayals back at the offending parties with venomous indignation. Driven by the guitar of Page Hamilton (Chris Traynor has since joined as rhythm guitarist), Helmet pulls the unsuspecting listener into dangerous currents. I'm not exactly bowled over by the unrelenting contumely of the lyrics or the hoarse ardor of the voices, but the musical architecture is awesome.

Aftertaste surges headlong through forty minutes of controlled fury, starting with the gorgeously gruff "Pure," which builds to a peak of tension through the deliberate march of guitar and drums. A driving bass line segues into the instant classic "Renovation," where sludgy guitars make like an army of dissidents storming the palace gates. "Driving Nowhere" accelerates from its feet-in-mud beginnings to a veritable concerto of clashing fretwork. There's an undeniable grandeur to the album's maze of interlocking riffs and hard-hitting bass and drums.

Not since the Soundgarden swansong *Down on the Upside* has a record hit with

the impact of Helmet's *Aftertaste*. Put it on and bolt the doors.

P.P.

PAUL McCARTNEY: *Flaming Pie*.

CAPITOL 56500 (54 min).

★★★

If you've heard the buzz about Paul McCartney's first studio album in four years and you're expecting *Band on the Run II*, you'll be disappointed. Instead, think *McCartney III*, and you'll be more than pleased.

No, I'm not damning with faint praise. McCartney's previous one-man-band projects always struck me as rather charming, despite their lack of stellar material. Unlike them, *Flaming Pie* does have a few additional players (Ringo Starr, Steve Miller, Jeff Lynne) and producers (Lynne, George Martin). But it emulates the pared-down approach and intimate sound of those earlier records, as McCartney climbs sweet, grand phrases ("The Song We Were Singing"), offers a trademark gorgeous ballad ("Somedays"), and punches up the soul in his voice and guitar ("Souvenir"). He has said that

working on the Beatles' *Anthology* series helped to reclarify his writing, but maybe with all the hoopla surrounding his recent knighthood, he's just eager to remind us that he can still be a regular-guy tunesmith.

One of the album's subjects is unmistakable: Paul loves Linda. Got a problem with that? If so, you may as well throw away your copy of John Lennon and Yoko Ono's *Double Fantasy*, another flawed but honest tribute to a lasting marriage. I don't have a problem with McCartney singing, "It was written that I would love you . . . I'll hold you for the rest of my life" — after all, the man has been married for nearly thirty years, and if he can celebrate that in music as touching as "Somedays" and "Calico Skies," more power to him.

The usual Paul-bashers will peg this record as a lightweight work by an ex-Beatle, and, yes, jams like "Used to Be Bad" and "Really Love You" are one-dimensional. But in its bright melodies, focused presentation, and (still) amazingly fresh vocals, *Flaming Pie* sounds to me like a good, respectable

Laura

Laura Nyro's early albums were among the most original, exhilarating, and influential records of the late Sixties, mixing soul, jazz, blues, folk, doo-wop, gospel, and rock with highly personal New York street-scene poetry. Often, her songs were more like many-sectioned suites than verse-and-chorus frameworks, and she sang them with a sort of primal abandon that made them unmistakably her own. Nonetheless, mainstream performers flocked to cover them, including Barbra Streisand ("Stoney End"), Blood, Sweat, and Tears ("And When I Die"), the Fifth Dimension ("Wedding Bell Blues"), and Three Dog Night ("Eli's Comin').")

Nyro finished compiling *Stoned Soul Picnic — The Best of Laura Nyro* (Columbia/Legacy) before she died from ovarian cancer in April at the age of 49. The first of the two discs includes much of her most important early work ("The Confession," "Emmie," "Tamer," and the title track, as well as the other songs mentioned above), and the music remains as thrilling as ever. There's a terrific joie de vivre to "Save the Country," a madcap energy to "Lu," and a startling danger to "Beads of Sweat." But things fall apart on the second disc, which is devoted to her latter period, when her output diminished in quantity and quality. As Nyro began channeling her energy into feminist and ecological concerns, her music lost its vibrancy. She might have seen fit to include more of her Gamble & Huff-produced soul covers here, as well as more songs from *Smile* and *Nested*, represented by only a single track each.

Nyro is one legend who truly deserves

her status, but overall *Stoned Soul Picnic* could have better served her musical reputation. That said, Disc 1 is worth the price of the whole package: It's as supreme a pop collection as they come.

Serious fans will also want to check out *Time and Love: The Music of Laura Nyro* (Astor Place) — like *Picnic*, a project conceived and completed before her death. Here are rich interpretations of fourteen songs from artists including Rosanne Cash, Jane Siberry, Jill Sobule,



Suzanne Vega, and the Roches. No one is brave enough to approximate Nyro's burning intensity or the frantic pacing of her uptempo songs, so the singers slow the material down to concentrate on melody and her transporting lyrics. Vega's "Buy and Sell" is so low-key as to be beatnik-cool, while Dana Bryant makes "Woman's Blues" sound like hip-hop soft porn. Others may be less effective (Phoebe Snow, for example, pitches the title song so high that only dogs can hear it), but they all prove that Nyro's art was indeed extraordinary, and strong enough to last the ages.

— Alanna Nash

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POPULAR MUSIC

record — not by an ex-anything but simply
by James Paul McCartney.

K.R.

MAURA O'CONNELL: *Wondering Home*.

HANNIBAL/RYKODISC 1410 (38 min).

Maura O'Connell combines the best of her native Ireland with her adopted Nashville on *Wondering Home*, an album of mostly Irish songs recorded in Dublin with some of the Emerald Isle's best-known musicians. Produced by renowned Music City dobroist Jerry Douglas, the tunes range from the traditional "I Hear You Calling Me," which he and O'Connell present in a dramatic arrangement that Edith Piaf might have applauded, to a version of Richard Thompson's "Down Where the Drunks Roll" that adds poetry, dignity, and beauty to a song that already brims with the same. The big-voiced O'Connell also serves up songs woven from poems by W. B. Yeats and Seamus Heaney, but she's at her most Irish in material that features the scampering tin whistle of Paul Brady and the pipes of John McSherry.

O'Connell tops her own standards in two songs. She and Douglas recast the traditional "Irish Blues" in a jazzy arrangement as she rears back on her heels in spirited, impassioned form, singing the eternal lament of a weary but still good-natured wife and mother. And in the almost painfully pretty "Dun Do Shuil," O'Connell's warm, dusky alto is filled with the sadness of the ages.

Wondering Home pleases on every level — musically, spiritually, and emotionally. It is an exceptional work by an extraordinarily gifted performer.

A.N.

BOZ SCAGGS: *Come On Home*.

VIRGIN 42984 (60 min).

★★★

In the halls of academe, it's called returning to first principles. In the musical realm, what Boz Scaggs has done on *Come On Home* is called getting back to his roots. A bluesman by trade before he made the pop-disco breakthrough *Silk Degrees* back in 1976, he brings his career full circle with his latest release. It is his most unadulterated, steeped-in-the-blues recording since his U.S. debut, 1969's *Boz Scaggs*.

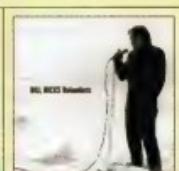
He's drawn to the uptown blues of Bobby "Blue" Bland and T-Bone Walker, typified by simmering horn sections, tart but tasteful guitar, and smooth, stylized vocals. Scaggs' most fully realized cover is a reading of Bland's "Ask Me 'Bout Nothin'" (But the Blues)," which plumbs a deep well of feeling with the restraint of a master. Other titans who are covered in this well-chosen collection include Jimmy Reed in a funky version of "Found Love," Sonny Boy Williamson in a raw take on "Early in the Morning," and the Stax songwriting team of Isaac Hayes and David Porter in a luscious "Your Good Thing (Is About to End)."

Add four songs by Scaggs himself, including the Walker-style "After Hours," and you've got an unpretentious set of smart, juke-joint blues and R&B like they don't hardly make no more.

P.P.

BOB vs. BILL

In one corner, weighing in with a new Nick at Nite recording of pre-sitcom material: Bob Newhart! And in the other corner, weighing in with a Rykodisc reissue: the late (pancreatic cancer, 1994, age 32) Bill Hicks! Keep it clean, guys — at least one of you.



PLAYING TIME	58 minutes	58 minutes
STYLE OF COMEDY	Benny	Lenny
FAVORITE SUBJECTS	Jobs, inventions	Sex, drugs, UFO's
FIRST TRACK	"Greeting"	"Greetings"
EXCERPT FROM FIRST TRACK	"Tonight's show is kind of to prove that, yes, I did do something before <i>The Bob Newhart Show</i> ."	"I'm very tired of staring out at your vacant faces looking back at me and wanting me to fill your empty lives with humor you couldn't possibly think of yourselves."
PRESIDENTIAL HUMOR	Abraham Lincoln prepares for Gettysburg.	George Bush bombs Iraq.
ON SMOKING	Sir Walter Raleigh tries to describe tobacco to the West Indies Company.	"I now realize I smoke for simply one reason, and that is: spite. I hate you nonsmokers."
MOVIE IDEA	Telling <i>King Kong</i> from the viewpoint of an Empire State Building night guard	Casting the terminally ill as stunt people in Chuck Norris movies
GROUPS OFFENDED	Women drivers	Republicans, rednecks, fundamentalists
SAMPLE RISQUÉ TOPIC	A nude police lineup	"I love pornography."
NUMBER OF EXPLETIVES	0	108
IS IT FUNNY?	Hysterical	Hysterical

TINY LIGHTS: *The Smaller the Grape the Sweeter the Wine*.

BAR/BUZZ 084 (42 min).

★★★

My guess is that the members of Hoboken's Tiny Lights have found some magic potion that transports them back to the summer of 1967. In any case, *The Smaller the Grape the Sweeter the Wine* sounds too giddy and too groovy to come from anywhere else. What's notable isn't just the range of styles — bubblegum pop, progressive/art rock, vintage soul, psychedelia — but the unaffected and warm-hearted way it all comes together.

Led by the married team of singer Donna Croughn and guitarist John Hamilton, Tiny Lights have been making engaging indie albums for nearly a decade. This one, their sixth, is the most consistent yet, thanks to a newfound focus: They've learned to be playful without getting precious, eclectic but not diffuse. The soul influence (with a few nods to Dusty Springfield's Memphis

era) is also a plus, especially in Croughn's singing. She used to have a childlike quality; now she's positively suave.

Added to that are all kinds of sonic and stylistic surprises. "Maybe You Will Listen" is a solo homage complete with a xylophone lick borrowed from "I'm Your Puppet." "Lazybones" begins as a straightforward rocker before dipping into a jazzy jam. And "Would You Like to Float" wraps echoes of Iron Butterfly's "In-a-Gadda-Da-Vida" around this invitation: "Would you like to float on a jelly roll and tumble with the weeds in a ghost town?" Sure, if these folks are the house band.

B.M.

TOWNES VAN ZANDT: *The Highway Kind*.

SUGAR HILL 1056 (49 min).

★★★

Townes Van Zandt, who was the dean of Texas singer-songwriters when he died on New Year's Day of a heart attack, specialized in story-songs about fringe charac-

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POPULAR MUSIC

ters whose grip on life was down to one torn fingernail. As a long-time alcoholic, he was already past that point when he recorded *The Highway Kind* on tours of the U.S. and Europe. Nothing — not even the fact that he was revered by two generations of country/folk songwriters — could keep him away from the imprisonment of the bottle.

"Ain't nothing much I ain't tried / Fast livin's slow suicide," he sings in the album's dark opener, "Still Lookin' for You." And that was probably true. The Van Zandt who appears here is a tortured, wandering spirit. And the title *The Highway Kind* refers, of course, to himself, a Woody Guthrie-like itinerant, forever searching, eternally troubled. In Guy Clark's "Dublin Blues" he sits an ocean away and wishes he was back in Texas looking for the elusive "her." And in Leon Payne's "Lost Highway" he sounds like a hitchhiker who has flagged his last ride. Throughout, Van Zandt presents himself as a soul who knows, just as surely as Hank Williams saw the light and heard the "Lonesome Whistle," that the end is near.

Part of Van Zandt's power was his rough-hewn, croaky-crusty baritone, a harrowing instrument that played counterpoint to the

soft underbelly of his tender love songs — confessions of missed opportunity, inarticulate yearnings, and sad regrets, like this album's "A Song For." He could say more with that weary voice and a small string of words than most other songwriters could get out of three verses and a chorus.

Sleep tight, Townes. You deserve it. A.N.

Collection

CARNIVAL!

RCA VICTOR 44769 (78 min).

★★★

This benefit for the Rainforest Foundation features star turns by a dazzling array of pop and world-music performers. Addressed to children as the future custodians of the planet, the program includes "Sweet and Low" (Bette Midler), "Abide with Me" (Elton John), and "I Bought Me a Cat" (James Taylor). Sting, Annie Lennox, and Paul Simon provide variety with less familiar childhood songs, and Luciano Pavarotti, Rubén Blades, and Johnny Clegg add the spice of foreign languages. The album concludes with Saint-Saëns's amusing *Car-*

rival of the Animals played by pianists Katica and Marielle Labèque and other classical artists. An internationalist's delight.

William Livingstone



JAZZ

DMP BIG BAND: Salutes Duke Ellington.

DMP 520 (67 min).

★★★

In its homage to Duke Ellington, the DMP Big Band, whose members are largely drawn from New York City's vast pool of studio musicians, captures the essence of the original arrangements in 20-bit surround but makes no attempt to slavishly emulate the solos. This is especially important, because it gives players like Lew Soloff, Steve Wilson, Jay Branford, Ryan Kisor, and Britt Woodman (who actually was an Ellingtonian) the freedom to lend a fresh spirit to the proceedings. And pianist Dan Rosengard may have skillfully absorbed Duke's keyboard style, but he does his own thing with it.

Previous DMP Big Band releases are *Carved in Stone*, a tribute to several past bands, and *The Glenn Miller Project*, but since Ellington's orchestra spanned several decades and most of his compositions received a treatment *du jour*, the DMP band is able to paint with a broader brush here. The fifteen tunes range from early classics like "The Mooche," "Rockin' in Rhythm," and "Things Ain't What They Used to Be" to "Kinda Dukish," with a number of Forties perennials in between. I do recommend the real thing, but don't dismiss this lovingly executed tribute. C.A.

CATALOG UPDATE

Santana

There has been a lot of action on the Santana front lately. Most important, Columbia/Legacy dug deep into its vaults and came up with the excellent-sounding two-CD *Live at the Fillmore 1968*, recorded in San Francisco prior to the band's studio debut. You can hear "Jingo," "Persuasion," "Treat," and "Soul Sacrifice" in early stages plus five songs that never made it to LP. Guitarist Carlos Santana, keyboardist Gregg Rolie, and bassist David Brown are here, but the congas and drums are manned by Marcus Malone and Bob "Doc" Livingston, respectively, predating the arrival of Michael Carabello and Michael Shrieve.

Rolie, Carabello, Shrieve, and timbalist José "Chepi" Areas made it to the band's first two records, and second guitarist Neal Schon joined for the third. All five players, together with latter-day bassist Alfonso Johnson, revisit the style of those early albums on *Abrazas Pool* (Miramar/BMG) with echoes of "Oye Como Va" and "Guajira" and

an actual remake of "Jingo." The result may be a bit heavy-handed, but the old energy and tonal colors are front and center.

Carlos himself wasn't part of that project, but he's the driving force behind the CD-ROM *A History of Santana — The River of Color and Sound*

(Graphix Zone). In fact, the title screen says this is "A History of Carlos Santana," and indeed it's primarily his show, as he gives guitar lessons for five songs (including "Black Magic Woman" and "Samba Pa Ti"), discusses influences (John Coltrane, Miles Davis, Jimi Hendrix, Bob Marley), and has his life story narrated by actor Edward James Olmos. This isn't the most inventive or interactive CD-ROM, but fans will appreciate the historical images (photos, posters, backstage passes), discography, and listings of all concerts, personnel, and guest musicians throughout the band's thirty-year career. — Ken Richardson



OSCAR PETERSON: A Tribute to Oscar Peterson — Live at the Town Hall.

TILARC 83401 (73 min).

★★★

This 1996 tribute brought Oscar Peterson together with colleagues of all ages to celebrate his fifty-some years in the business (and to benefit the Jackie Robinson Foundation). Telarc has edited the three-hour concert down to an hour and a quarter for this 20-bit surround CD. Peterson has been slowed somewhat by a stroke he suffered in 1993, but he can still dazzle, and in "Reunion Blues" he teams with fellow pianist Benny Green, whose youthful agility compensates nicely.

Elsewhere, Clark Terry revisits "Mumbles," the wordless novelty vocal that has been a crowd-pleaser since he recorded it with Peterson's trio several years ago. Tenor saxophonist Stanley Turrentine is fine in his first-ever appearance with the pianist ("In a Mellow Tone"), vibist Milt Jackson and Peterson interact memorably ("Bag's Groove"), and Roy Hargrove, on flugelhorn, renders a mellow, lyrical "My Fool-

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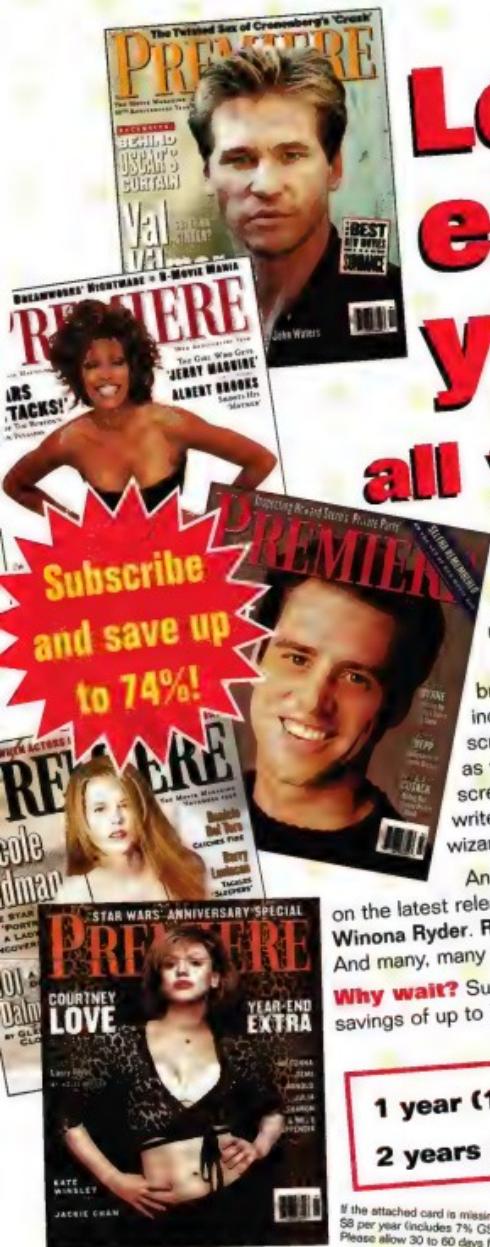
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POPULAR MUSIC

ish Heart." Manhattan Transfer, which contributes a pleasing, chronologically correct reading of "(Get Your Kicks on) Route 66."



adds a nice twist to the proceedings with "The Duke of Dubuque," a prepossessingly retro number sung *a cappella*.

There is better Peterson out there, but this one has an engaging spirit.

C.A.

RALPH PETERSON:
The Fo'tet Plays Monk.
EVIDENCE 21742 (58 min).

★★★

You may know drummer Ralph Peterson from his work with Terence Blanchard, or from several Blue Note albums under his own name. He has expressed some dissatisfaction with his early records, citing restrictions beyond his control, but he seems to

have found in the Evidence label an outlet through which his creativity can flow freely. The current edition of his Fo'tet — with saxophonist Steve Wilson, vibist Brian Carroll, and bassist Belden Bulloch — is the best lineup to date and the same cohesive unit that made *The Reclamation Project* a couple of years ago. Given the artistic success of that release, one has to wonder why it took so long to make a follow-up, but *The Fo'tet Plays Monk* is worth the wait.

If you heard *Ornetology*, Peterson's 1990 Blue Note tribute to Ornette Coleman, to which Don Byron's clarinet lent a distracting Raymond Scott air, you might approach this Thelonious Monk salute with low expectations, but rest assured that there is no comparison. Never has Peterson's percussive work been more impressive.

C.A.

LESTER YOUNG:
The Kansas City Sessions.
COMMODORE/GRP 402 (67 min).

★★★★

Operated by Milt Gabler out of his New York record shop in the late Thirties and Forties, Commodore was the prototypical jazz specialty label, the one that set the standard for Blue Note, Prestige, and Riverside. Commodore's catalog has changed hands numerous times over the decades, and the rights to it now belong

to GRP, whose first batch of Commodore reissues includes touchstone material by Billie Holiday, Pee Wee Russell, and Wild Bill Davison.

My favorite among these "new" Commodores is a collection of the informal small-group sessions that Gabler (or, in one instance, John Hammond) recorded with musicians drawn largely from the Count Basie Orchestra in 1938 and 1944. Originally released on 78's as the work of the "Kansas City Six" or the "Kansas City Five" (though in fact recorded in New York), the sessions owe their place in the jazz canon to the harmonically elliptical and visionary tenor saxophone solos of Lester Young — and for offering the most revealing examples we have on record of his slippery prowess as a clarinetist. But *The Kansas City Sessions* also features captivating solos by trombonist Dicky Wells and trumpeters Buck Clayton and Bill Coleman — not to mention Eddie Durham's ahead-of-its-time amplified guitar and a charming vocal by rhythm guitarist Freddie Green on "Them There Eyes."

The sessions are classic in every way, and it's wonderful to have them on CD. But reissue producer Orrin Keepnews might have done a better job of remastering; there's an annoying amount of distortion here and there, especially on Young's tenor sax.

QUICK FIXES

THE CLAYTON BROTHERS:
Expressions.

QWEST 46351 (66 min). ★★★

Veterans of their own jazz-group recordings as well as sessions backing pop artists like Natalie Cole, Whitney Houston, and Aretha Franklin, saxophonist Jeff and bassist John Clayton are joined here by pianist Bill Cunliffe and drummer Herlin Riley. Very pretty music, skillfully played, but I am missing something; perhaps you will hear it.

C.A.

SARA HICKMAN: Misfits.

SHANACHIE 8026 (70 min). ★★★

Quirky singer-songwriter Hickman has a talent as big as her native Texas, but it takes a bit of reining in now and then — hence this "collection of odds and ends" that didn't make it onto previous albums. That doesn't mean it's all chaff; there's plenty of wheat, too. For first-timers, *Equal Scary People*, her 1988 debut, might be a better place to start. But for those who can't get enough of her puckish wit and tuneful folk, pop, and lite rock, *Misfits* fits in just fine.

A.N.

EARL HINES: At Home.

DELMARK 212 (37 min). ★★★★

This set was indeed made at Hines's Oakland home, in 1969. I can't honestly say that it stands out among the prolific pianist's records, but it does capture him in superb form.

And although it's short, Hines fills every minute with such adventure that you should think of it as a concentrate to be diluted with your own imagination.

C.A.

THE MIGHTY MIGHTY BOSSTONES:
Let's Face It.

BIG RIG/MERCURY 53447 (38 min). ★★★

The Bosstones try two approaches on their third major-label album, and both work fine. In the first half of *Let's Face It*, they play straight-ahead ska rather than their usual punk-ska. Then the old-style Bosstones return with guitar and tempo jacked up. Five years ago, they helped create a re-Revival of ska, and now that it's commercial, they picked a smart time to make one of their better albums.

B.M.

MORPHINE: Like Swimming.

DREAMWORKS/RYKODISC 50009 (38 min).

★★★

Morphine comprises a baritone sax player who honks like some aggrieved alley cat, a bassist who has only two strings, and a drummer who keeps it simple. Their ongoing challenge is to prevent that format from devolving into a gimmick, and they're middling successful this time. They can be repetitive ("Eleven O'Clock"), but in the title track they find a bluesy groove that will have you nodding along with trancelike intoxication in their underwater world.

P.P.

BARRY AND HOLLY TASHIAN:

Harmony.

ROUNDER 0412 (36 min). ★★

The Tashians make a real contribution to

old-style country, bluegrass, and acoustic honky-tonk with their hand-in-glove harmonies, gut-reaction emotion, and original material, which sounds torn from the pages of a long-ago diary. There's a lot of upbeat



energy here, as the songs build on each other for a joyous mood. But the Tashians make their deepest marks with "Wild Wind," which features Ronnie McCoury's soul-splitting mandolin, and "Don't Kneel at My Graveside," a moving, pantheistic reminder of the brevity and sanctity of life.

A.N.

VENICE: Born and Raised.

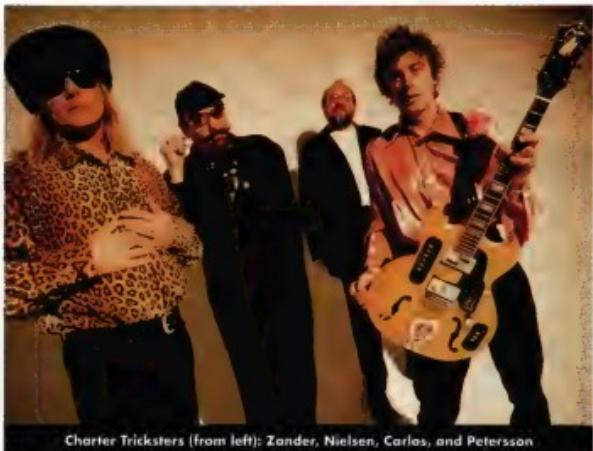
VANGUARD 79498 (68 min). ★★

Venice, named for the band's California hometown, is a soft-rock quartet that recalls the Eagles, Paul Simon, and Crosby, Stills, and Nash. At first, they're welcome company, but then they get stupid on you: "If you were a vampire in a casket / I would love to meet you in the mist / I'd keep the garlic far away / Drink all night and sleep all day / I am not afraid to do all this / For a kiss on the neck." It's amazing how quickly some guys run out of material.

A.N.

Cheap Trick

BY BRETT MILANO



Charter Tricksters [from left]: Zander, Nielsen, Carlos, and Petersson

There was a time when no self-respecting teenager of the Seventies would be without a copy of a Cheap Trick album, preferably one of the first three, sitting on the shelf between Aerosmith's *Toys in the Attic* and Kiss's *Alive!* Now, with their new album — titled *Cheap Trick*, just like their 1977 debut record — they're out to take that audience back.

They want you to forget about the late-Eighties stretch that saw their greatest chart success with their worst albums, especially the 1988 release *Lap of Luxury*, which yielded a No. 1 hit with the supremely lame ballad "The Flame," which they didn't write. "We don't even play it anymore," notes bassist Tom Petersson. "Unlike some of the other band members, I never hated that song, but I can't see how it did us any good. We had a No. 1 record, big freakin' deal; we had it with a song that nobody seemed to like. We might as well have recorded 'Rubber Duckie' or 'My Ding-a-Ling'."

You'd think it wouldn't be difficult to get good albums out of a band doing hard, melodic rock with Sixties roots and a sense of humor. But Cheap Trick's identity crisis lasted for much of the Eighties and Nineties, during which time they worked with a series of strong-minded producers and started relying on outside material. Sometimes the results were fine, as on 1983's overlooked *Next Position Please*, a brightly melodic set produced

by Todd Rundgren. Less encouraging were turkeys like *Woke Up with a Monster* (their last studio record, a 1994 one-off for Warner Bros.), where producer Ted Templeman gave them a shrill metal sound suggesting Van Halen on a bad day. "We probably overcompensated a little with that one," Petersson admits.

He lays the blame for Cheap Trick's wasted years squarely at the feet of ex-

**"If you thought
'The Flame' was bad,
you should
have heard the other
songs they wanted
us to do."**

manager Ken Adamany and former label Epic (the band now records for Red Ant). "We had so many outside influences coming in," Petersson explains. "Our records didn't sell like people thought they should, and everybody thought they knew how to fix it. If you thought 'The Flame' was bad, you should have heard the other songs they wanted us to do — just the sappiest crap you've ever heard in your life. And the fact is that we don't need

any help failing; we can do that well enough on our own."

Sure enough, the new album features the four charter Tricksters — Petersson, guitarist Rick Nielsen, singer Robin Zander, and drummer Bun E. Carlos — writing and performing most of the material on their own; they also co-produced the record with Ian Taylor. And while the new *Cheap Trick* isn't quite as killer as the old *Cheap Trick*, *In Color*, or *Heaven Tonight* — mainly because humor is in shorter-than-usual supply — it is their strongest effort in more than a decade. They've finally gotten back their original balance of metal and pop, mixing Beatlesque power melodies ("Hard to Tell," "Yeah Yeah") with gonzo guitar workouts ("Baby No More," "Wrong All Along"). Their more serious approach turns up in "You Let a Lotta People Down," a thinly veiled comment on their own career, and in "Shelter," which deals with the death of Nielsen's parents. "I hope people don't hear that one and say, 'Oh jeez, another ballad!'" Petersson sighs. "To me, it's less hokey, more of a John Lennon kind of song."

Still, the best of the new Trick tracks aren't even on the album: They're on a one-off vinyl single recorded for Sub Pop with alternative-rock hero Steve Albini doing the production. The two tracks — the original "Baby Talk" and a cover of the Move's "Brontosaurus" — are longer and louder than anything on the album and damn near perfect in their mix of mile-high guitars and mile-wide hooks. Besides, the association with Albini and Sub Pop couldn't help but send a message that Cheap Trick was cool again. "I'm not sure we didn't realize that, but that's not why we did it," Petersson says. "We did it because he's a fan of ours, and it sounded like a good idea to make a single right in the middle of doing the album."

A lot of old fans are rooting for Cheap Trick to do what Kiss did last year: make a comeback and strike a blow for eternal adolescence. "Yeah, but Kiss hasn't made a new record yet, and we're doing new material," Petersson points out. "It's hard to compete with your own past. If people are going to come up to you and say things like 'Yeah, when I first heard 'I Want You to Want Me,' we had sex at the outdoor theater,' you can't compete with memories like that. And people always ask us, 'Can't you do anything like the first album again?' And we think, how could we do that — by recording the same songs in the same order?"

Or by getting a batch of songs that's nearly as good? "Well, right. It's the same way with any band: If you get too popular, people get sick of you. But if you're an underdog band like us, you'll at least get some sympathy. Sooner or later, people are going to say, 'Hey, those guys aren't bad'." □



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CLASSICAL MUSIC

NEW RECORDINGS REVIEWED BY ROBERT ACKART,

RICHARD FREID, DAVID HALL,

JAMIE JAMES, GEORGE JELLINEK, AND ERIC SALZMAN

BARBER: Violin Concerto; *Souvenirs;* Piano Concerto.

Robert McDuffie (violin); Jon Kimura Parker (piano); Atlanta Symphony, Yoel Levi cond. TELARC 80441 (70 min).

★★★

BARTOK: Violin Concerto. **BLOCH:** Baal Shem. **WALTON:** Violin Concerto.

Joshua Bell (violin); Baltimore Symphony, David Zinman cond. LONDON 452 851 (68 min).

★★★★★

Yoel Levi and his responsive Atlanta orchestra, with two very capable soloists, turn in lovely performances of Barber's two best-known concertos and a particularly ingratiating one of the ballet suite *Souvenirs*. That very title, though, is a reminder of a demonstrably stronger account of the Piano Concerto, John Browning's remake with Leonard Slatkin conducting, which comes on the same RCA Victor disc as their piano-duet version of *Souvenirs*. Barber tailored this concerto for Browning, and he remains its incomparably persuasive champion. Jon Kimura Parker's performance on the Telarc CD is not about to challenge that kind of authority and conviction, and when it comes to the Violin Concerto the perfectly enjoyable account by Robert McDuffie must yield to the utterly commanding new one on London by Joshua Bell.

Bell approaches his 30th birthday (in December) already an artist of mature insights, with a compassionate rather than exploitative way of identifying with his chosen repertory and a level of technical security that enables him to commit his full intellectual and emotional resources to

communicative ends. On the disc at hand he benefits from a partnership with the similarly committed David Zinman and his superb Baltimore orchestra that is exceptional in every respect. Every subtle texture in Barber's magical score emerges with stunning clarity in the faultlessly balanced recording, which conveys both the strength and the delicacy of the performance. The piano in the opening movement is perfectly placed, without calling undue attention to itself; the beautifully played obbligato solo in the second movement is sheer poetry, with its poignancy and mystery intact. The Atlanta orchestra's contribution is simply not on this level, and Telarc's close-up focus pretty well takes intimacy out of the picture.

Bell and Zinman also bring off Bloch's *Baal Shem* (with its seldom-heard orchestral accompaniment) and the formidable Walton Violin Concerto on the same high

level as the Barber, and with the same faithfulness to the individual character of each work.

R.F.

BARTOK: Concerto for Orchestra.

LUTOSLAWSKI: Concerto for Orchestra.

Royal Stockholm Philharmonic, Andrew Davis cond. FINLANDIA 14909 (68 min).

★★★★★

Andrew Davis pits himself here against the strongest possible competition — Pierre Boulez and the Chicago Symphony on Deutsche Grammophon in the Bartok Concerto for Orchestra, the composer himself on EMI in the Lutoslawski Concerto



for Orchestra, and a 1990 London CD of both works with Christoph von Dohnányi and the Cleveland Orchestra. Even so, Davis takes the Royal Stockholm Philharmonic players through clean and brilliant readings of both the familiar Bartok and the somewhat less frequently heard Lutoslawski, written a dozen years after the Hungarian masterpiece.

I like Davis's way with the wonderful central slow movement in the Bartok and the quiet wit and poetry he brings to the "interrupted serenade," as opposed to its more obvious vulgarisms. The colorful Lutoslawski score, based in part on Polish folk-song motifs, is every bit as listener-friendly as the Bartok, its high point for me being the central scherzo, by turns gossamer and flamboyant. Here Davis is fully

Butterfly and Beyond

Chinese soprano Ying Huang made quite an unusual operatic debut last year — not on stage but on film in the title role of Puccini's *Madama Butterfly*. Her performance on the Sony Classical soundtrack was praised in these pages for being "well thought out and sensitively and securely vocalized" (October 1996). If you missed the film, you can catch her *Butterfly* on the Columbia TriStar home video version released this spring, and you can get a broader view of her vocal artistry from her first solo CD,



Soprano Ying Huang

released by Sony in June. With the London Symphony Orchestra conducted by James Conlon, the album features *bel canto* and Puccini arias as well as two Chinese songs by Zhu Ring arranged by the French composer Marius Constant.

American fans will have the chance to hear Huang perform in her debuts with the Boston Symphony at Tanglewood and the Mostly Mozart Festival in New York City in July and with the Houston and Fort Worth Symphony Orchestras in the fall.

STAR SYSTEM

Excellent	★★★★★
Very good	★★★★
Good	★★★
Fair	★★
Poor	★

BERLIOZ'S TREMENDOUS "TE DEUM"

Berlioz was nothing if not grandiose in his aspirations as a composer. His operas grew so lavish in scale that they became impossible to perform, and the same principle holds true for his liturgical music. His most spectacular religious composition of all was the *Te Deum*, for tenor, large orchestra and chorus, and organ, which scored a triumph at its première in 1855. Immediately after the performance, the composer wrote to his friend Liszt: "It was colossal. My God, if only you had been there. I assure you that it is a tremendous work." Berlioz was never a modest man, but this once we may forgive him for being full of himself. "Tremendous" is just the right word to describe the *Te Deum*, which remains one of the most impressive compositions in the entire choral repertoire.

A work of enormous emotional range and fiendish musical complexity, it is well served in a new Delos CD, both by the performers and by Delos' Virtual Reality Sound, which lives up to all the hoopla despite its gimmicky name. The recording was made at a public performance last year at New York's Cathedral of St. John the Divine, which has a magnificent, reverberant acoustic and one of the country's best organs. The sound is clearly articulated and finely detailed, and the CD has an extraordinary dynamic range without the common irritation of pianissimos so soft that the fortissimos blast your speakers to spin-



Conductor Dennis Keene

SOHN/PHILHARMONIA RECORDS

ters. Coughs and other audience sounds have been reduced to near-inaudibility.

The interpretive values are every bit as excellent as the demonstration-class sound. John Aler sings the prayer "Te ergo quæsumus," the only solo part in the 50-minute work, with rich, full-bodied tone and a vibrato just this side of a quaver. Yet it is the chorus that makes or breaks a performance of this piece, and the Voices of Ascension, augmented by the Young Singers of Pennsylvania, rise to the occasion, singing with as much sensitivity as power; a seamless cohesion reigns throughout.

Conductor Dennis Keene presides over his massed forces with assurance, bringing out one subtlety after another in the music, and the cumulative effect is truly overwhelming. Keene is also responsible for the disc's most serious flaw, however: At the conclusion of the performance, he reads his liner notes — 23 minutes' worth — while excerpts from the work play oh-so-softly in the background. Some might say that this is a little bonus you can ignore if you like, but it might also be argued that it's a deplorable exercise in egotism. *Jamie James*

BERLIOZ: Te Deum.

John Aler (tenor); Mark Kruczek (organ); Young Singers of Pennsylvania; Voices of Ascension Chorus and Orchestra. Dennis Keene cond. DELOS 3200 (73 min).

★★★

in his element, and the recorded sound is just fine. *D.H.*

GLINKA: Ruslan and Lyudmila.

Vladimir Ognovienko (Ruslan), Anna Netrebko (Lyudmila), Larissa Diadiukova (Ratmir), Gennady Bezzubenko (Faraf), Galina Gorchakova (Gorislava), others; Kirov Chorus and Orchestra, Valery Gergiev cond. PHILIPS 456 248 (three CD's, 202 min).

★★★

A live recording, this set is a valuable document of a spectacular production, mounted in 1995 in St. Petersburg and later presented to acclaim in San Francisco, of the second Russian opera led by that country's No. 1 conductor, Valery Gergiev. After the phenomenal success of *A Life for the Tsar* in 1836, Mikhail Glinka began collaborating with Alexander Pushkin, Russia's great poet, on an epic opera with magical, Oriental themes. Pushkin died in a duel

shortly after they had begun, but Glinka kept right on composing without a librettist. Finally he enlisted the aid of an amateur poet named Shirkov, who proved to be so inept that no fewer than four additional writers were brought in to try and salvage the piece.

The work that resulted is, predictably, botched from a dramaturgical point of view, but it overflows with rich, strange musical beauties and is well worth a listen. The plot now seems very campy, featuring a beautiful, bewitched princess, a haunted palace, both a magic ring and a magic wand, sorcerers good and evil, and behind all the mischief, an evil dwarf (!). Suffice it to say that true love triumphs over evil dwarfdom, and in the end the chorus sings a thunderous finale proclaiming the glory of the sacred homeland.

It's a splendid mess, and the excellent, all-Russian cast makes as strong an argu-

ment for it as Glinka could ever have hoped for. The most exciting vocal performance is that of Anna Netrebko as the princess Lyudmila; her exquisitely colored, flexible soprano is at the service of exceptional technical virtuosity. Baritone Vladimir Ognovienko sounds (and is) old enough to be her father rather than her lover, but the throbbing intensity of his delivery makes Ruslan's laments and vows of vengeance a pure pleasure. In a luxurious bit of casting, soprano Galina Gorchakova takes the small role of Gorislava, making it one of the set's high points. Gergiev propels the complex, colorful music with his usual energy and sensitivity, and the well-balanced recording is surprisingly free of stage noise. *J.J.*

HAYDN: Symphonies Nos. 93, 99, and 100 ("Military").

Philharmonia Orchestra, Leonard Slatkin cond. RCA Victor 68425 (72 min).

★★★★★

Three of Haydn's twelve "London" Symphonies, the peak of his achievement as a symphonist, receive elegant performances here from London's Philharmonia Orchestra, with recorded sound to match, in this third volume of Leonard Slatkin's traversal of the set. Slatkin's approach recalls Leonard Bernstein, whose red-blooded Haydn readings set the standard for his generation of conductors. Slatkin maintains the tradition, but with considerably more refinement and attention to what we have learned in the past two decades about Haydn's performance practices.

The high point of the Symphony No. 93 is the slow movement, where Slatkin brings out the concerto elements of what is almost a concerto for orchestra without overdoing the famous bassoon joke toward the close. The menuetto moves briskly, as it should, and the subtle ritard leading to the final reprise is a delightful touch. The first-chair oboe does a snappy job with his solo in the finale. In No. 99, the slow introduction is an imposing affair, with the passing dissonances tellingly pointed. The slow movement with its fine woodwind work is another highlight, and the virtuosic elements in the finale come off as light as air. The ever-popular "Military" Symphony gets a forthright, no-nonsense treatment. The second movement moves at a true allegretto, and there's no funny business with the "Turkish" percussion featured in the second and fourth movements. As modern-instrument recordings of Haydn symphonies go, Slatkin's are among the best. *D.H.*

KERNIS: Second Symphony; Musica Celestis; Invisible Mosaic III.

City of Birmingham Symphony, Hugh Wolff cond. ARGO 448 900 (56 min).

★★★★★

The intensity and color that give Aaron Jay Kernis's music so much impact in the concert hall are well represented in this superbly presented assortment. The Second Symphony, while it bears no descriptive title, was composed in 1991 as a reaction to the Gulf War by a young man (Kernis had just turned 31). The three movements do

have titles — "Alarm," "Air/Ground," and "Barricade" — but, like all the best music that comes about from such impetus, the work's emotional substance is in no way delimited by imagery of a specific time or place; it comes through as an utterance of



compassion whose urgency is as generalized as it is deeply felt. There are occasional suggestions of Shostakovich in sections that might be characterized as protest or lamentation, but the overriding impression is of a truly original voice, utterly spontaneous and uncontrived.

The contemporaneous *Musica Celestis* for string orchestra, which Kernis adapted from the slow movement of his First String Quartet, is a more expansive cousin to Barber's similarly produced Adagio for Strings, but it explores some sonorities not suggested in that familiar piece. It is well placed here as a foil to the eruptive ferocity of the symphony's outer movements. The earlier *Invisible Mosaics III*, one of Kernis's responses to what he saw in the churches of Ravenna in 1985, brings an altogether more good-natured abundance of energy and color, its five contrasting sections adding up to a mostly exuberant little concerto for orchestra. Hugh Wolff, who conducted the première of the symphony in 1992, presides over this intriguing program with something like proprietary zeal, and the recording team has done everyone proud. R.F.

KORNGOLD: Symphony in F-sharp Major, Op. 40; Six Simple Songs, Op. 9 (excerpts); Marietta Lied.

Barbara Hendricks (soprano); Philadelphia Orchestra, Franz Welser-Möst cond. EMI 56169 (63 min).

★★★

The revival of the music — operatic, cinematic, and otherwise — of Erich Wolfgang Korngold has not, to my ears, uncovered many hidden gems. But the late, dramatic Strauss/Mahlerian (occasionally even Brahmsian) Symphony in F-sharp Major, written a few years before the composer's death in 1957 and dedicated to the memory of President Franklin Delano Roosevelt, is a strong, colorful work that's well represented here by a lively and idiomatic performance.

In Korngold's chronology, late is late, and early is truly early; in between is a lot of Hollywood film music. The Six Simple Songs were written before World War I, when the composer was in his early teens; in the 1920's he orchestrated the four of them recorded here. He was barely out of his teens when he wrote his famous opera *Die Tote Stadt*, from which "Marietta

Lied" is the best-known excerpt. All of these suave and expressive songs are elegantly sung by soprano Barbara Hendricks. The Philadelphia Orchestra under Franz Welser-Möst give dynamic and convincing performances, captured in a superb EMI recording made not in the sacred precincts of the Academy of Music, but in a studio in New Jersey!

E.S.

MUSSORGSKY: Pictures at an Exhibition. RAVEL: Valses Nobles et Sentimentales.

Ivo Pogorelich (piano). DEUTSCHE GRAMMOPHON 437 667 (62 min).

★★★

I would have ranked this recording higher if Ivo Pogorelich hadn't tried to turn Ravel's alternately glittering and feline *Valses Nobles et Sentimentales* into an Impressionist tone poem instead of the essentially Lisztian discourse it is. The performance of *Pictures at an Exhibition*, however, has a lot going for it. For one thing, it's complete, including the oft-omitted fourth "Promenade," and Pogorelich gives sharp characterizations to the sections, such as the wonderfully sinister "Gnomus" and the delightfully varied and elegant "Tuilles." The "Bydo" (ox-cart) episode opens forte, following Mussorgsky's own indication rather than the Rimsky-Korsakov edition or Ravel's orchestration. The following "Promenade" is played with the utmost tenderness. "Limoges — Marketplace" comes off as a real tour de force, and the "Con mortuis in lingua morta" section is superbly eerie, as is the middle section of "The Hut on Fowl's Legs."

Like most pianists, Pogorelich does his best to achieve heroic dimensions with the finale, "The Great Gate at Kiev." I have heard only two pianists bring this off, how-

ever: Vladimir Horowitz and Mikhail Pletnev. Despite the missing fourth "Promenade" in Pletnev's Virgin recording, I would rate him the winner in the piano-solo *Pictures* sweepstakes, with Pogorelich the first runner up. Deutsche Grammophon gives him good, rich piano sound. D.H.

profundity and pensiveness. The earliest piece here, the *Collage sur BACH*, opens the program with an ingratiating liveliness and striking string sonorities. Its initial toccata and concluding ricercar, both based on the notes represented in German notation by the letters B-A-C-H (which we call B-flat, A, C, and B-natural), frame a sarabande that is a workout on one of Bach's own themes, with an oboe, harpsichord, and piano joining the strings and the B-A-C-H motif lurking below the surface. *Frates* (presented here in Version VI, for string orchestra and percussion) and *Cantus* (for



strings and bell) are Pärt's most frequently heard works. In *Festina Lente* ("Make haste slowly"), the theme is performed simultaneously in three different tempos. *Summa* was adapted for string orchestra from a piece originally composed for unaccompanied chorus.

Following these five very brief works is the 1977 *Tabula Rasa*, whose two movements, adding up to some 26 minutes, contrast sharply in respect to movement and stillness. With the opening *Collage* it forms a sort of unified frame for the CD, as this extended work, too, harks back to the Baroque era, being based on the concerto-grosso principle, with two violins as *concertino* — but updated with a prepared piano added to the mix.

Jean-Jacques Kantorow and his splendid players shine with conviction throughout this fascinating hour. The vibrancy of their sound, enhanced by the acoustics of their fine hall in Espoo, Finland, is a joy in its own right, and the Bis team has taken it all down in demonstration-class sound. R.F.

PROKOFIEV: Violin Concertos Nos. 1 and 2; Sonata for Solo Violin.

Tedi Papavrami (violin); Polish National Radio Symphony, Antoni Wit cond. NAXOS 8.553494 (62 min).

★★★

The Albanian-born, French-based violinist Tedi Papavrami, 26, here makes his recording debut in major repertoire the two Prokofiev violin concertos, as well as the solo sonata from the composer's later years. On the evidence of this Naxos CD, young Papavrami will bear watching over the next few years. His tone at the opening of the First Concerto seems slightly veiled, but an unmistakable lyrical impulse characterizes his approach to the work as a whole. He has no problem with the violinistic acrobatics, but it is definitely the songlike element that prevails. His tempos in the final movement are just a mite slower than the norm. The Second Concerto, where the composer's

ever, Vladimir Horowitz and Mikhail Pletnev. Despite the missing fourth "Promenade" in Pletnev's Virgin recording, I would rate him the winner in the piano-solo *Pictures* sweepstakes, with Pogorelich the first runner up. Deutsche Grammophon gives him good, rich piano sound. D.H.

PÄRT: Collage sur BACH; Frates; Cantus in Memoriam Benjamin Britten; Summa; Festina Lente; Tabula Rasa.

Tapiola Sinfonietta, Jean-Jacques Kantorow cond. Bis CD-834 (62 min).

★★★★★

There could hardly be a more attractive introduction to Arvo Pärt's music than the six instrumental works collected here, which span nearly thirty years and range in mood from playful to varying degrees of

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lyrical muse holds even greater sway than in No. 1, is right up Papavrami's alley. I was particularly struck with his vibratoless opening in the lovely slow movement, instead of the "hot" Russian tone we usually hear. The Polish orchestra's backup is just fine in both concertos.

The Sonata for Solo Violin is not top-of-the-line Prokofiev, but it is a thoroughly effective, lyrical work. It was intended originally for ensemble violins in unison, and I suspect it may sound better in that guise. Papavrami's performance does the music full justice, however. Given musicianship and virtuosity of this caliber, and a budget price, this CD rates as a best buy. The recorded sound is decidedly better than I have heard on Naxos' CD's recorded in Kiev in the Ukraine. D.H.

RAMEAU: Hippolyte et Aricie.

Mark Padmore (Hippolyte), Anne-Marie Panzarella (Aricia), Lorraine Hunt (Phèdre), Laurent Naouri (Thésée), Eriian James (Diane); Les Arts Florissants, William Christie cond. ERATO 15517 (three CD's, 183 min).

★★★

Long before Wagner, there was Rameau. *Hippolyte et Aricie*, perhaps his masterpiece, is a stupendous music drama on a classical theme. The story, from Euripides via Racine (in its earlier, more tragic forms it was always known as *Phaedra*), is about the battle between passion and reason, between Amor and Diana, between sensuality and good sense, between individual emotion and the good order of society. Phèdre's erotic passion for her stepson threatens the very body politic; in this version at least, rightful order is restored by the very happiest of happy endings.



The battle between unchecked emotion and the law of reason is played out not only in the drama, but also in the music. Rameau's music is about fluid declamation, scene setting, physical movement, and the organization of emotion. His highly original ideas are under such tight control that they constantly seem to want to burst their bounds. Relief is provided throughout by the dances, passionate and erotic expressions that have been tamed and domesticated.

William Christie's revival of French Baroque opera is founded on this balance between intensity of expression and restraint of form. He has helped to develop a group of singers with focused voices who can sing the difficult, nonmetric cadences of the French language, who know how to make long phrases, and who can ornament the lines in expressive ways (they give good *apogaiatura!*). Lorraine Hunt is the best

known of these singers, and her interpretation of the unforgiving (and, to tell the truth, rather unpleasant) role of Phèdre is magnificent; her voice has evolved into a state of maturity that perfectly characterizes and even creates sympathy for this anti-heroine. The young lovers, tenor Mark Padmore and soprano Anna-Maria Panzarella, have fresh and relatively uncomplex voices suited to the agile vocal lines and youthful expression of their roles. The casting of the supporting parts is superb. Listen to Patricia Petibon's delicate performance of the gorgious and fluttery "*Rossignols amoureux*" or Nathan Berg's patrician bass triple play as Jupiter, Pluto, and Neptune.

Rameau was perhaps the first major composer to use tone color in the modern sense, and Christie pays a lot of attention to the vocal and orchestral timbres that provide many of the delights of this work. A major feature is the use of rhythmic flexibility — let's call it Baroque swing — in the dances and major ensemble numbers, an essential ingredient that is missing or misconstrued in most modern Baroque performances but brilliantly executed here. E.S.

RESPIGHI: Ancient Airs and Dances, Suites Nos. 1-3.

National Symphony of Ireland, Rico Saccani cond. NAXOS 8.553546 (54 min).

★★★

Respighi's *Ancient Airs and Dances* — three suites for chamber orchestra adapting sixteenth- and seventeenth-century Italian and French music — should have earned him credit as one of the founders of Neoclassicism. But unlike Stravinsky (his fellow Rimsky-Korsakov pupil), he never quite got it right, and there is something slightly suspect in the Romantic colors and potentially phony antiquarianism of these over-restored antiques.

Nevertheless there are striking things. The second suite mixes rustic Italian and French dances from the turn of the sixteenth century in a quite unpretentious way. The dramatic *siciliana* of the third suite (definitely not the "lilting pastoral aria" described by the liner notes) is followed by a stormy passacaglia that has a certain dramatic impact.

The unlikely origin of these performances should not be a deterrent. The orchestra, which started out as the Irish Radio and Television Symphony, reinvented itself as the Irish National Symphony in 1990. Rico Saccani is a young conductor from Tucson, Arizona, who has established himself in Europe. Together they give a good account of themselves. E.S.

SHOSTAKOVICH: Symphony No. 8.

Dallas Symphony, Andrew Litton cond. DELOS 3204 (59 min).

★★★★

Shostakovich's searing Eighth Symphony is now represented by some sixteen recordings on CD — not a bad showing for a work which after its first, wartime performances in the U.S.S.R. and elsewhere had to wait until the 1960's for its first recording and which only began to come into its

own after André Previn's 1973 London Symphony version on Angel (now available on CD). This latest version finds Andrew Litton and the Dallas Symphony in superb form, delivering a reading of powerful conviction that can stand next to Previn's or, for that matter, the one by Yevgeny Mravinsky, who gave the world première. Litton's is what I'd call a dare-all performance that really comes off. There is immensely volatile nervosity in the catastrophic opening movement and just the right mindless ro-



botic feel to the music that follows. The great *toccata-scherzo* seethes with cold fury, and the ensuing *passacaglia* is paced with unerring elegiac feeling. Especially affecting is the handling of the freely declaimed passages that lead from the *passacaglia* to the intricate finale — a "return to life" with glimpses of nightmares past. Wilfred Roberts's solo bassoon in the final pages is almost worth the price of the CD.

The superlative recording, encoded in Dolby Surround, makes this CD extra special. The initial attack of the double-basses at the very start tells it all. It is a pleasure to hear this score *whole*, with no trace of overload and not only wonderfully firm string tone and plangent brass and woodwinds, but also percussion that emerges with startling clarity and power. D.H.

TAN DUN: Ghost Opera.

Wu Man (pipa); Kronos Quartet. NONESUCH 79445 (36 min).

★★★

Tan Dun is a Chinese composer, resident for a number of years in this country. His music has received increasing and deserved attention here and abroad, but *Ghost Opera*, commissioned for the Kronos Quartet and Wu Man, who plays the pipa, a kind of Chinese lute, is his most impressive accomplishment to date. The full title is *Ghost Opera for String Quartet and Pipa with Water, Stones, Paper, and Metal*, and everyone, pipa player included, vocalizes as well as bowing, clanging, hitting, and otherwise manipulating metal, stones, paper, and water. The ancient Chinese notion of a "spirit opera," in which performers talk with their own past and future, is amplified here to include a crosscultural dialogue between strings and stones, Bach and Chinese folk song, chanting (or silent) Buddhist monks and Shakespeare, paper and water, string quartet and pipa, East and West.

There are only 36 minutes on this CD, but they are a vast 36 minutes. The sound elements employed are extraordinarily ordinary and utterly simple — bits of musical quotations, a gong in water, clicking stones

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that use the mouth as a resonance chamber (to name only three) — but the way they are put together touches the sublime. The result is dramatic, sonically satisfying, and philosophically complete.

E.S.

VIVALDI: *Le Humane Passioni* (Violin Concertos, RV 277, 234, 199, 271, and 180); *Concerto in G Minor* (RV 153); Giuliano Carmignola (violin); Sonatori de la Gioiosa Marca. DIVOX/EMPIRE MUSIC GROUP 79406 (54 min).

★★★

Not one of Vivaldi's own titles, "*Le Humane Passioni*" ("Human Passions") is applied collectively here to five of his violin concertos to which he did give descriptive titles: *Il Favorito*, *L'Inquietudine*, *H Sospetto*, *L'Amoroso*, *Il Piacere*. The last of the six works on the disc does not call for a soloist but is one of the numerous pieces Vivaldi labeled variously "concerto" or "sinfonia" and that are related in form to the Italian opera overture. Of the violin concertos themselves, the one in C Major called *Il Piacere* ("Pleasure") is No. 6 in Vivaldi's Op. 8 set of twelve violin concertos, of which Nos. 1-4 constitute *The Four Seasons*. All those here are true virtuoso pieces, as the soloist, Giuliano Carmignola, reminds us with an abundance of both fire and elegance.

The same qualities define the character of the ensemble: Sonatori de la Gioiosa Marca is another of those crack teams of Italian Baroque specialists performing, one to a part, on "original instruments" — and from the evidence here, one of the most remarkable. Indeed, while all six items here are available on several other similarly attractive discs, performances with the charm, brilliance, and all-round envelopment of these are simply not to be missed. The recording itself is absolutely first-rate, giving the small body of strings (actually no more than a string quartet plus violone) a big, warm sound without blurring the lines. R.F.

WAGNER: Die Meistersinger von Nürnberg.

José Van Dam (Hans Sachs), Karita Mattila (Eva), Ben Heppner (Walther), Alan Opie (Beckmesser), others; Chicago Symphony Chorus and Orchestra; Georg Solti cond. LONDON 452 606 (four CD's, 255 min).

★★★

In his introductory notes to the present recording, conductor Georg Solti remarks that "*Die Meistersinger* is, above all, a conversation piece. I feel that it should be light, that it should be approached almost like chamber music, and that the orchestra must never dominate the singers." The appropriate lightness of touch is indeed attempted in the performance, but the "chamber music" reference must be understood in Wagnerian terms; the orchestra comes rather close to "dominating" the singers at times. This is perhaps unavoidable in an opera so rich in orchestral detail and color, and with such a magnificent orchestra (and chorus), no one should complain.

There are several excellent versions of *Die Meistersinger* in the current catalog,

many of them attractively cast. This one is no exception, but a few reservations are in order. The part of Hans Sachs calls for a rich sonority not at José Van Dam's command. Nevertheless, I like the pensive, benign poet he projects, a portrayal clothed in warm, purely focused tones that appear strained only in the relentlessly high tessitura of the "Euch macht ihr's leicht" passage in Act III. As Walther begins the third verse of his Prize Song outline, Ben Heppner introduces it with wrong notes. It is astonishing that this remained uncorrected, especially since Heppner is the best Walther on the world's stages today, and his performance, though a trifle less relaxed than he sounded for Wolfgang Sawallisch a few years ago (EMI), deserves all praise. So does Karita Mattila for her bright, rich, and steady tone and winning portrayal of Eva, though her textual communication could stand improvement.

Rene Pape's light-toned, benevolent Pogner is not favored in the audio balance. Alan Opie is a properly malicious Beckmesser, free of exaggerations, and he commands a decent singing tone for his misbegotten aria. Herbert Lippert projects a youthful, neatly sung David, while Iris Vermillion's Magdalene is pleasant but bland. All the Master Singers are acceptable, and so is the Night-Watchman without quite stealing the scene the way some of his recorded predecessors did. This festive release, honoring Solti's 85th birthday, is enhanced by the elegant packaging. *G.J.*

Collections

NATALIE DESSAY: French Opera Arias. Natalie Dessay (soprano); Monte Carlo Philharmonic, Patrick Fournillier cond. EMI 56159 (66 min).

★★★

French soprano Natalie Dessay's performance as Olympia, the singing doll, was one of the high points of Erato's recent recording of Offenbach's *The Tales of Hoffmann*, and it is included in this collection, as is a sparkling rendition of the "Bell Song" from Delibes's *Lakmé*. Otherwise, with the exception of Ophelia's mad scene from Thomas' *Hamlet*, which is the meaty heart of the disc, the arias here are either by very obscure composers, such as Emmanuel Bondeville and Henri Sauguet, or are drawn from obscure works by well-known composers. One of the most spectacular numbers is the mad scene from Meyerbeer's long-forgotten opera *Le Pardon de Plörmel*, which displays Dessay's extraordinary vocal range, soaring effortlessly up to the A above high C. She also gives us an incandescent performance of the incredibly intricate waltz number, "O, légère hirondelle," from Gounod's *Mireille*.

As if to show the durability of the genre, Dessay has also programmed some arias by twentieth-century French composers, including one from Ravel's *L'Enfant et les Sortiléges* and a charming rendition of Thérèse's bizarre feminist diatribe in Poulenc's *Les Mamelles de Tirésias*. Dessay is a song-

bird with a golden throat, and this collection assembles a delicious and unpredictable array of vocal dainties. *J.J.*

MUSICA ANTIQUE KÖLN: Chaconne.

Musica Antiqua Köln, Reinhard Goebel cond. DEUTSCHE GRAMMOPHON 453 418 (69 min).

★★

I recently wrote a music-theater work for a French theater in the form of a chaconne, and in the process I discovered a lot about this form. The first of many American

dances to be imported into Europe, it arrived in Spain from Central America accompanied by thunderous denunciations of its lasciviousness and obscenity. Naturally it became a craze, quickly spreading all over Europe. After being taken up by the French aristocracy, it was suitably domesticated and became the standard dance finale in French opera. As a purely musical form — variations on a harmonic bass — it was taken up by many Baroque composers in Italy, England, and Germany, culminating

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BRAHMS: Symphony No. 1; *Nänie*.

Tanglewood Festival Chorus; Boston Symphony, Bernard Haitink cond. PHILIPS 442 799 (61 min). ★★

Bernard Haitink's Brahms cycle with the Boston Symphony, of which this CD with its rather stodgy First Symphony is the concluding installment, has lacked vitality. Fine choral work in the lovely *Nänie*, but I prefer, both musically and sonically, Claudio Abbado's reading on Deutsche Grammophon.

D.H.

**BRUCKNER:** Symphony No. 3.

London Classical Players, Roger Norrington cond. EMI 56167 (57 min). ★★★

Roger Norrington's interpretation is warm and appealing; although the tempos aren't especially brisk, the energy of the performance makes them seem so. The initial impression is one of thinness, particularly in the strings, and when the trumpet introduces the theme in the opening passage, it sounds tiny. Yet the interpretation quickly grows on you; it exhibits an agility and humanity rare in Bruckner recordings. J.J.

DELIUS: Florida Suite; Over the Hills and Far Away; Idylle Printemps;

La Quadrone; Scherzo; Koanga, Final Scene.

English Northern Philharmonia, David Lloyd-Jones cond. NAXOS 8.553535 (79 min).

★★★

Most of these works were born of Delius's sojourn in Florida; the *Idylle Printemps*, *La Quadrone*, and the Scherzo apparently receive their recording premières here. Six female singers take part in the final scene from the opera *Koanga*; the words they sing are not provided in the otherwise comprehensive notes, but the sensitive, committed performances and fine sound make this CD an excellent value. R.F.

ROSNER: String Quartets Nos. 2, 3, and 5; Duet for Violas.

Ad Hoc String Quartet; Dieder Buckley; Mark Oates (violas). ALCANTY 210 (67 min). ★★

I enjoyed the freshness, brevity, and unpretentiousness of the single-movement String Quartet No. 2 that the New York-

based composer Arnold Rosner wrote in 1963 at age 17. The polyphony in No. 3 (1965, revised 1992) is a bit Hindemithian, with a whiff of Hovhaness and even the modal Neoclassical Bloch here and there. No. 5 (1977) has a chantlike first movement and a dancelike second that I found rather lacking in variety. The brief Viola Duet (1991) has a tart flavor, and the instrumental combination is interesting. Honest, conscientious performances and recordings. D.H.

TORROBA: Sonatina; Burgalesa; Suite Castellana; Madroños; Castillos de España; other works.

David Russell (guitar). TELARC 80451 (66 min). ★★

Federico Moren Torroba was a notable twentieth-century composer of guitar music in a traditionally romantic and colorful Spanish mode. Most of this music would seem to require a lot of Iberian sensibility to carry off. David Russell, although Scottish by birth, was brought up on the island of Minorca. He has a gentle, sweetly expressive style that rests on a easy but formidable command of his instrument and a deep affinity for traditional Hispanic music. By the CD's end, he almost makes you believe that Torroba was a major composer. E.S.

ROBERTO ALAGNA: Sacred Songs.

Roberto Alagna (tenor); City of Toulouse Choir and Orchestra, Michel Plasson cond. EMI 56206 (68 min). ★★★

In a mixed program of familiar and unfamiliar French vocal music, including the Bach/Gounod *Ave Maria*, Franck's *Panis Angelicus*, and Bizet's *Agnes Dei*, Roberto Alagna raises goose flesh with his conviction, energy, and beauty of tone. This recital will make you understand why he is often mentioned as a possible successor to Carreras, Domingo, and Pavarotti.

William Livingstone

**CANADIAN BRASS:** Plays Bernstein.

RCA VICTOR 68633 (62 min). ★★

The Canadian Brass has always been much more than just a mere brass quintet, but here they are joined by a whole roster of keyboards, percussion, and additional brass to perform high-gloss, big-band arrangements of music from *West Side Story* (mostly), *Candide*, and *Mass* plus a rather tacky Bernstein tribute by producer Christopher Diodrick. Sumptuous sound. E.S.

in Bach's famous chaconne for solo violin. In the process, the chaconne merged with another dance of similar structure, the pasacaglia, and lost its connections with dance and theater.

This collection by the estimable Musica Antiqua Köln under Reinhard Goebel is almost completely without the terpsichorean element. As a result, the reading of Lully's Chaconne in G Major — music that was no doubt intended for an opera — is heavy-



handed and lacks the needed graces. The examples by Purcell and Blow, undoubtedly also written for stage choreography, work somewhat better as abstract instrumentals in these vigorous performances. The German pieces by Mayr, Pezel, and Muffat, apparently pure instrumentals, are the most successfully realized pieces here, with rather grand readings that derive their expressiveness, in the Classical manner, directly from the form. E.S.

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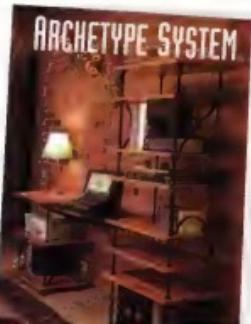
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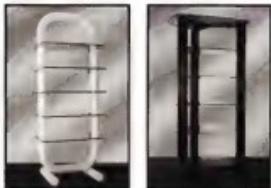
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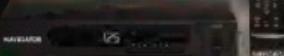
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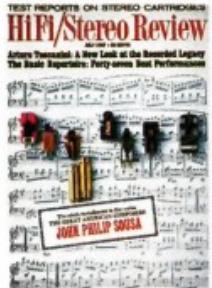
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TIME DELAY

30 YEARS AGO

"There is no allusion to taste, either in material or performance," wrote critic Rex Reed in his July 1967 review of the Rolling Stones album *Between the Buttons*, "and any resemblance to genuine talent is purely accidental."

Among new products was Harman Kardon's SC6 combination AM/FM receiver and turntable (\$330) with a BSR/ McDonald changer and an Empire 808 cartridge. That pickup was one of eleven tested by Julian Hirsch and Gladden

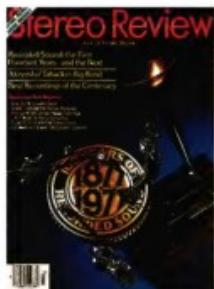


Hirsch, ranging from ADC's Model 220 (\$9.95) to Ortofon's S-15T (\$80). Elsewhere, we noted that "a recent advance in recording technique promises to reduce still further the sonic distance between performer and listener." Said advance: Dolby noise reduction.

Music features included Eric Salzman's "The Fear of God — and Toscanini," a re-examination of the legendary conductor, and Richard Franko Goldman's "John Philip

Sousa," Part 9 of our Great American Composers series.

Reviewing the Grateful Dead's debut album, Peter Reilly dismissed the band as "an average psychedelic group which makes a great deal of noise."



20 YEARS AGO

The July 1977 cover — juxtaposing an early Edison cylinder phonograph with the Micro Seiki DDX 1000 turntable, able to accept up to three tonearms — honored the 100th anniversary of recorded sound. Articles included Ivan Berger's "One Hundred Years of Recording," David Hall's "Best Recordings of the Centenary," and "Audio's Digital Future" by Acoustic Research's Robert Berkovitz. Then there was "Two Hundred Years of Recording" by "Larry Klein III," who, writing in 2007, recalled the invention of the "Slansky Neuron Coupler," which could feed sound directly to the brain with the use of a "sensory helmet."

The second Advent loudspeaker (\$150) was featured in

new products, and the second cassette deck from Dual, the C919 (\$450), was tested by Hirsch-Houck Laboratories, which concluded, "It is a



Advent loudspeaker, 1977

special pleasure for us to work with a product in which everything works 'just right.'"

"So why are records always black?" asked James Fraiser of New York City in "Audio Q. and A." Columnist Larry Klein gave two reasons: cosmetics and tradition. The fine carbon powder that is mixed with the vinyl "has no lubrication or antistatic properties but is simply there to obscure the bubbles or other visual (but not audible) 'defects' below the grooved surface."

"There is nothing wrong with Emerson, Lake, and Palmer's musicality and eclecticism, but the very title *Works* implies a serious synthesis that is nowhere even attempted, let alone achieved," wrote Eric Salzman. "We await Volume 2."

10 YEARS AGO

"Rap is a form of music as viable as classical, jazz, rock,

The Grateful Dead, 1967



Stereo Review



or whatever," wrote Chris Smith of Willmar, Minnesota, in a July 1987 letter directed at Mark Peel, who had panned the Beastie Boys' *Licensed to Ill*. "Maybe STEREO REVIEW should put you on the Bon Jovi beat, you radical fellow, you!"

"The sound quality of a DAT recording is limited only by that of the source material," Julian Hirsch concluded in the first U.S. tests of two Japanese DAT decks, the Sony DTC-1000ES and the Victor (JVC) XD-Z1100. Elsewhere in our coverage of Japanese audio, Tokyo correspondent Bryan Harrer reported on products ranging from the Hitachi NW-1 — a combination AM/FM receiver, CD player, and double cassette deck — to Denon's DP-100M turntable with heavy-duty spring suspension.



Denon turntable, 1987

John Eliot Gardiner's version of Bach's *St. John Passion* on Deutsche Grammophon appeared in Best of the Month, as did Crowded House's debut, of which Mark Peel said, "Ten years from now, Casey Kasem will be playing 'Don't Dream It's Over' on the weekend oldies countdown. We'll hum along with Neil Finn's memorable chorus, and Split Enz will be the answer to the show's trivia question."

—Ken Richardson

THE HIGH END

COREY GREENBERG

More Tail Than Sinatra

As we wait for the powers-that-be to settle on a standard for DVD-Audio, the music version of DVD with high-quality multichannel audio but no video, it behooves me to get up on my hind legs and howl to the consumer-electronics industry and the music business: *When it comes to the sound you mix to the surround channels, I want more tail than Sinatra.*

In recording parlance, "tails" are what engineers call the reverberation and echoes of the venue in which the music is recorded. They're called tails because the reverber follows the main sound of the instrument or voice, bouncing around the room awhile, trailing off, and changing its tonal balance depending on the size and acoustics of the room. You almost never hear the tails as separate entities, but whether you're listening to the Dallas Symphony Orchestra in sumptuous Myerson Hall or Tabby Thomas playing to a capacity crowd of fifty down at the Blues Box in Baton Rouge, the tails are what give a live performance that tangible, enveloping sense of ambience that makes live music sound so, well, *live*.

Because the tails must be mixed in the same channels as the rest of the music in a two-channel stereo recording (or a mono one), the result never really sounds as full and three-dimensional as a live performance. For one thing, the room reflections you should be hearing to your sides and from behind your head come from the front of the room, which dilutes the sense of ambience. When people in the audience clap, it sounds as if they're sharing the stage with the musicians. That's why the promise of surround sound for music has always thrilled audiophiles and music lovers — if the recording could capture the tails as they sounded in the actual hall, the potential for fidelity and realism in recorded music would be that much greater.

So when I say give me more tail than Sinatra, I'm saying let's keep the musicians in the front channels and the tails in the surround channels. In other words, give me the sound of the *room* in the surround channels — not the primary sounds of the singers, musicians, and so on. Maybe if you're some goat-eating ex-beatnik, you'll want to hear handclaps and bongo slaps in the rear to give it that au-

thentic East Village hootenanny flavor. And I can certainly see the potential for some truly amazing surrealism when experimental musicians begin using surround sound as a creative tool to conjure up strange and fantastic soundscapes. But when DVD-Audio is a reality and the recording industry starts producing music in discrete digital surround, I really, *really*, don't want to suffer through any more of the heavy-handed surround treatment I've been hearing from the handful of Dolby Digital and DTS music surround discs currently floating around.

The few Dolby Digital surround music recordings I've heard so far — like the truly awful Earth, Wind & Fire remix on Dolby Labs' AC-3 test laserdisc, which has whole horn sections blattting at you from the surround channels — are plenty cheesy, but thankfully they've mostly been demo fodder on test laserdiscs not

I don't want any more heavy-handed surround like I've heard on the few 5.1-channel music discs currently around.

available to the public. But then there's stuff like DTS's Marvin Gaye *Forever Yours* CD, which features such classic stereo recordings from the 1970's as "What's Going On" and "Let's Get It On" encoded in DTS 5.1-channel surround sound. I listen to this CD and I lose the will to live. This CD is a wake-up call to an industry about to enter into a whole new era of sonic possibility.

First of all, the whole idea of taking a stereo recording and remixing it for surround without the approval of the artist is loathsome, especially when it comes to classic, sacred music like Marvin Gaye's catalog. You shouldn't mess with this stuff at all unless you do what MCA did recently, which was to go back and clean up the mastering to deliver better-sounding CD's of the original stereo mix. You certainly don't go in there with some cheese-filled producer and pan everything

all over the place so that backup singers and tambourines blare out of the rear as loudly as Gaye's voice up front. The DTS version of "I Heard It Through the Grapevine" even has tambourines and drums that pan back and forth between the left and right surround speakers! If you think that *reads* ridiculous, wait till you hear it. It's beyond moronic. Forget the wizzing-on-the-grave part — it just plain doesn't sound good. It sounds gummy and distracting. I can't believe so many manufacturers were holding this disc up as prime demo material at the Winter CES — it is the worst thing I've heard in years. It is *not* the way to use surround sound to push music recording toward a new level of realism and fidelity.

What DTS and Dolby and others should be doing is producing new recordings in surround sound from the get-go. The front channels shouldn't be totally dry, but most of the reverb and room sound, whether real or digitally simulated, should be heard from the surround channels, not the front. The common practice of mixing the tails in with the rest of the music for two-channel stereo needs to be re-examined and abandoned (except in mixes meant for two-channel broadcast, like radio) because it's actually counterproductive for a 5.1-channel surround mix. I guarantee you that no matter what genre the music may be, only recordings mixed in this manner for DVD-Audio will sound anything like a live performance. The "Sound! Sound! From All Around!" type mixes will seem about as realistic and enjoyable as the mechanical gorilla piano player at Chuck E. Cheese's clanging the upright on one side of the room while the doggie trombonist is blattting over in the opposite corner and the ocelot grooving out on the Hammond B-3 over by the cotton-candy machine is starting the intro to "Hi Me With Your Best Shot." Have you ever actually tasted the cheese at a Chuck E. Cheese's? It's the food equivalent of a surround recording that's got backup singers in the rear and a bongo drum that pans back and forth behind your head.

When stereo first became available to artists and producers, there was an early phase where everyone went buck-wild and you wound up with stuff like John Lennon singing in one channel while the drums and guitar played in the other. I fully expect to see a lot of really bad, inane mixes when the recording industry first gets hold of true discrete digital surround. But here's hoping that this period passes quickly and we start seeing the record companies deliver on the promise of discrete digital surround. When that happens, we will have left the limitations of conventional stereo so far behind us that the sound of two-channel music will seem even more quaint and canned than moose does today. □

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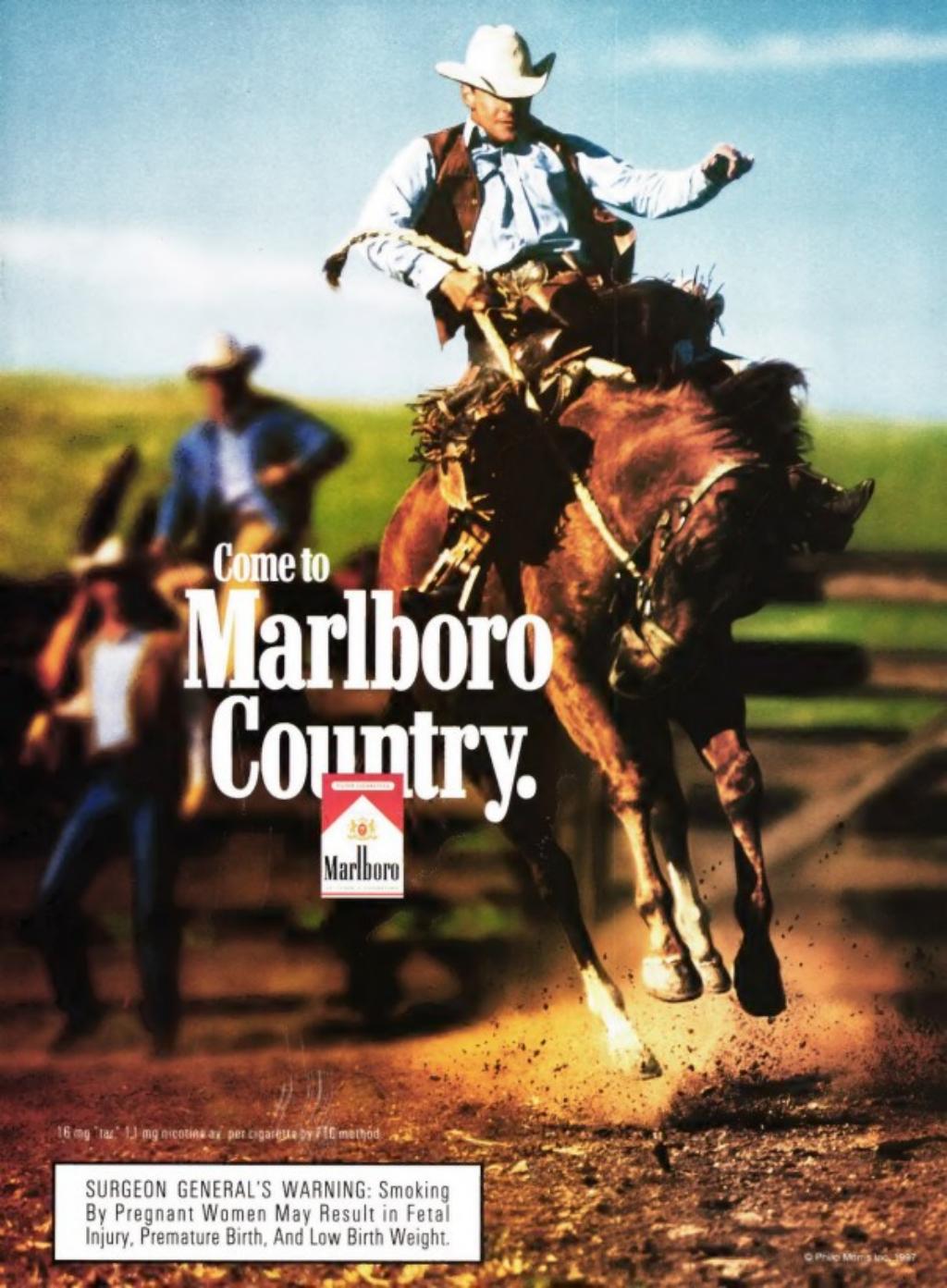
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